SHRI SHIVAJI EDUCATION SOCIETY, AMRAVATI'S

SHRI SHIVAJI COLLEGE OF ARTS, COMMERCE AND SCIENCE, AKOLA (MS)

Affiliated with Sant Gadge Baba Amravati University, Amravati (MS)

UGC Status- College with Potential for Excellence (Phase II Completed)

DST- FIST (Level "00") Support;

Lead College Status by S. G. B. Amravati University, Amravati (MS)

Website: www.shivajia.ac.in

1.3.1

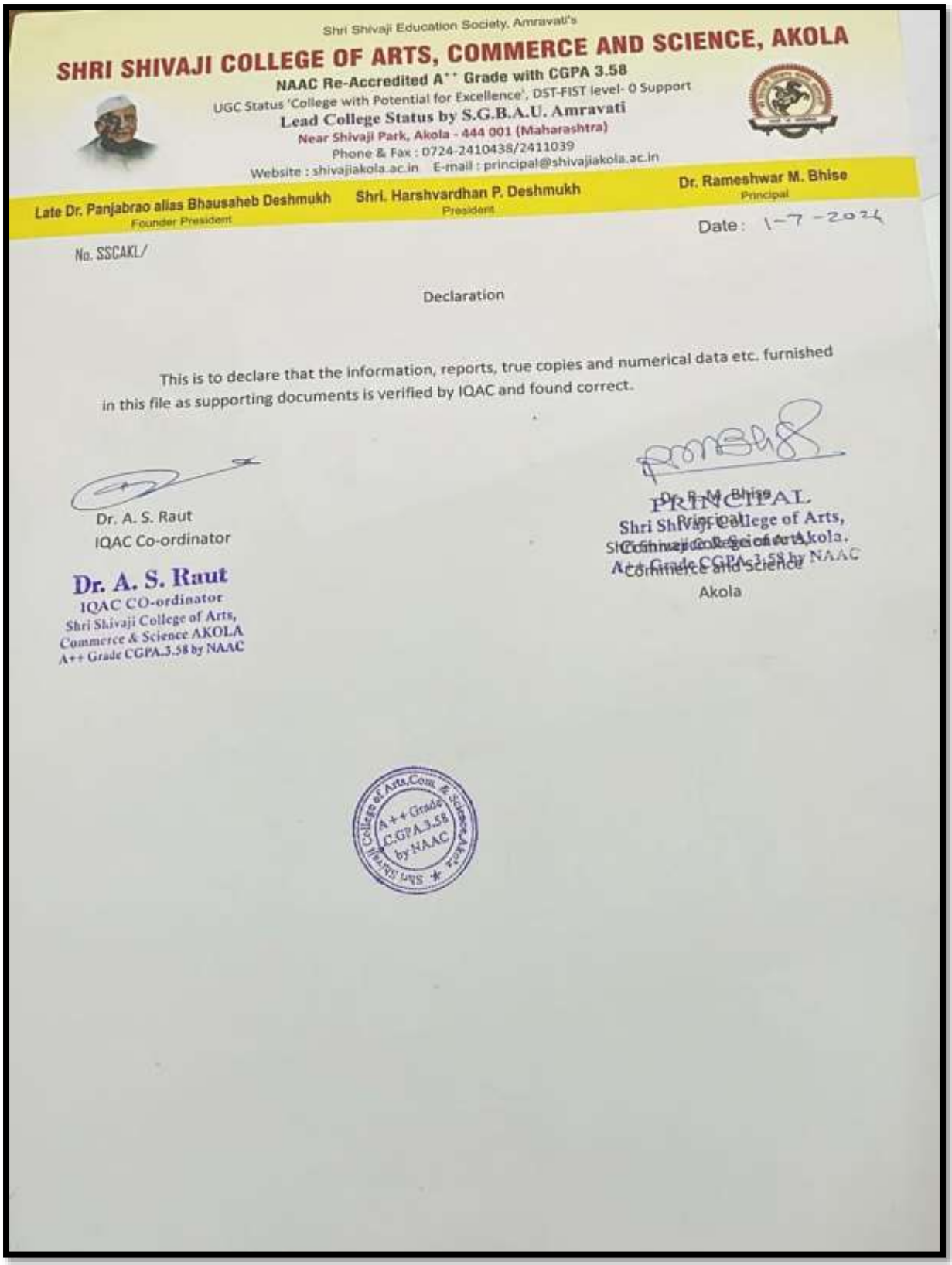
INSTITUTION INTEGRATES CROSS CUTTING ISSUES RELEVANT TO GENDER, ENVIRONMENT AND SUSTAINABILITY, HUMAN VALUES AND PROFESSIONAL ETHICS INTO THE CURRICULUM

ACADEMIC YEAR: 2023-2024

The college as a unit follows as system that inculcates the cross cutting issues related to Gender, Environment and Sustainability, human Values and Professional Ethics into curriculum. The syllabuses of Science, Humanities and Commerce have all the above said topics in its curriculum. The students are taught these topics with equal vigour along with other contents. Apart from the regular teaching on these issues, the college has other mechanisms to address them.

After admissions, gender audit is carried out every year. On an average the college has almost equal male-female student ratio. "Vishakha" a committee dedicated for welfare of women, works effectively to look into the issues of harassment of girls and female staff, if any. The health awareness programmes also are carried out every year in college. Biochemistry and Microbiology departments conduct Hemoglobin tests, blood group check-up of girl students and suitable diet plans are suggested. There is a separate and spacious Girls' common room having sanitary napkin vending machine installed in it. The detailed history of girl students' menstrual and other health problems is noted down and proper medication is prescribed. To boost the confidence of girl students, women working in various fields from Akola are felicitated on Women's Day. In third and fourth semester of all faculties, Environmental Studies is a compulsory subject, in which the students get detailed information on the issue of Environment. Apart from regular teaching of this subject, the college conducts various programmes to let student remain more aware of the sustainability of the environment. Every year, the "Forest Conservation Day" is celebrated on 23rd July to make students aware about conservation and protection of forest and its ecological importance. Ozone Day is also celebrated on 16th September and "Wildlife Conservation Week" is celebrated from 1st October to 7th October. At the same time the college follows it practically and has a "Green Campus". We also have a solar unit installed in college that saves energy as well as money and man power.

As a part of inculcating human values among the students, apart from chapters in syllabus, the students are given information through various platforms and programmes. The N.S.S. and N.C.C units help volunteers and cadets understand the importance of community, its need and problems better. NSS & NCC departments have separate wings for girls. These two units help students develop character, discipline, leadership, secular outlook. The Entrepreneurship Cell is of immense help in providing students the professional skills and a platform to explore their creativity.



Shri Shivaji Education Society, Amravati's

SHRI SHIVAJI COLLEGE OF ARTS, COMMERCE AND SCIENCE, AKOLA

NAAC Re-Accredited A++ Grade with CGPA 3.58

UGC Status 'College with Potential for Excellence', DST-FIST level- 0 Support

Lead College Status by S.G.B.A.U. Amravati

Near Shivaji Park, Akola - 444 001 (Maharashtra)

Phone & Fax : 0724-2410438/2411039

Website : shivajiakola.ac.in E-mail : principal@shivajiakola.ac.in

Late Dr. Panjabrao alias Bhausaheb Deshmukh, Founder President | Shri. Harshvardhan P. Deshmukh, President | Dr. Rameshwar M. Bhise, Principal

No. SSCAKL/

Date: 1-7-2024

Declaration

This is to declare that the information, reports, true copies and numerical data etc. furnished in this file as supporting documents is verified by IQAC and found correct.

Dr. A. S. Raut
IQAC Co-ordinator

Dr. A. S. Raut
IQAC CO-ordinator
Shri Shivaji College of Arts, Commerce & Science AKOLA
A++ Grade CGPA.3.58 by NAAC

Dr. R. M. Bhise
Principal
Shri Shivaji College of Arts, Commerce and Science
Akola

PRINCIPAL
Shri Shivaji College of Arts, Commerce & Science, Akola.
A++ Grade CGPA 3.58 by NAAC

Shri Shivaji College of Arts, Com. & Science Akola * A++ Grade C.G.P.A.3.58 by NAAC

Contents

Syllabus on Environment and Sustainability

Syllabus on Human Values

Syllabus on Gender Sensitization

Activities Conducted for the address cross cutting issues relevant to Environment and Sustainability, Gender, Human values, Professional Ethics.

Syllabus on Environment and Sustainability

24. ENVIRONMENTAL STUDIES

Total Marks : 100

PART-A

SHORT ANSWER PATTERN **25 Marks**

1. The Multidisciplinary nature of environmental studies

- Definition, scope and importance.
- Need for public awareness. (2 lecture hours)

2. Social Issues and the Environment

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns.
- Case studies.
- Envionmental ethics : Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.

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. Forest Conservation Act.
. Issues involved in enforcement of environmental lesislation.
. Public awareness. (7 lecture hours)

3. Human Population and the Environment

. Population growth, variation among nations.
. Population explosion - Family Welfare Programme.
. Environment and human health.
. Human Rights.
. Value Education.
. HIV / AIDS.
. Women and Child Welfare.
. Role of Information Technology in Environment and human health.
. Case Studies. (6 lecture hours)

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PART-B
ESSAY TYPE WITH INBUILT CHOICE

50 Marks

4. Natural resources :

- **Renewable and non-renewable resources :**
- Natural resources and associated problems.
- Forest resources : Use and over exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
- Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer - pesticide problems, water logging, salinity, case studies.

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- Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.
- Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

(8 lecture hours)

5. Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem :-
  - Forest ecosystem
  - Grassland ecosystem
  - Desert ecosystem
  - Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lecture hours)

6. Biodiversity and its conservation

- Introduction - Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation.
- Hot-spots of biodiversity.
- Threats to biodiversity : habitat loss, poaching of wildlife, manwildlife conflicts.

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. Endangered and endemic species of India.

. Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity. (8 lecture hours)

7. Environmental Pollution

. **Definition**

. Causes, effects and control measures of :-

- Air pollution
- Water pollution
- Soil pollution
- Marine pollution
- Noise pollution
- Thermal pollution
- Nuclear hazards

. Solid Waste Management : Causes, effects and control measures of

. Role of an individual in prevention of pollution.

. Pollution case studies.

. Diaster management : floods, earthquake, cyclone and landslides. (8 lecture hours)

PART-C

ESSAY ON FIELD WORK

25 Marks

8. Field work

. Visit to a local area to document environmental assets - river / forest / grass land / hill / mountain

. Visit to a local polluted site - Urban / Rural / Industrial / Agricultural

. Study of common plants, insects, birds.

. Study of simple ecosystems - pond, river, hill slopes, etc. (5 lecture hours)

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(**Notes** : i) Contents of the syllabys mentioned under paras 1 to 8 shall be for teaching for the examination based on Annual Pattern.

24. Preparation and presentation of herbarium of pathological specimens available in the region (Atleast 30)
25. Preparation of Fungal spore atlas.
26. Field visit to different localities
27. Visit to Agriculture University, Plant Pathological research centers

Semester – III

ELECTIVE PRACTICAL-VI: APPLIED MYCOLOGY AND PLANT PATHOLOGY

PRACTICAL SCHEDULED

Time: 06 hrs. Maximum Marks: 40

Q.1) Identify and describe any two fungal plant diseases..... 08 Marks

Q.2) Identify and give salient features of two fungi from the mix culture. 08 Marks

Q.3) Identify, classify and describe any two fungi. from given seed borne mycoflora/soil mycoflora/Rhizosphere mycoflora..... 05 Marks

Q.4) Demonstrate Koch's postulate/pure culture technique..... 04 Marks

Q.5) Spotting (Specimen/Slide)
(01 - bacterial disease; 01-viral diseases, 01- Phytoplasmal disease; 01-Fungal disease, 01- Spore slide).....10 Mraks

Q.6) Viva-Voce 05 Marks

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Semester – IV

PAPER - XIII: PLANT ECOLOGY

Unit I : Basic concepts and scope.

1.1 Concept, Classification and scope of ecology: Holocoenotic Environment.

1.2 Ecological factors: Climatic, Edaphic, Biotic; Law of limiting factors.

1.3 El-Nino and global warming.

1.4 Ozone layer, Ozone Depletion and its consequences.

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Unit II: Population and Community Dynamics

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2.1 Population characteristics; population dynamics, carrying capacity, various parameters and measurements.

2.2 Community concept; characteristic features of communities, analysis of communities (analytical and synthetic characters.

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2.3 Community coefficients; Ecotone and edge effects; ecological niche.

Unit III: Vegetation Development

3.1 Types and mechanism of ecological succession.

3.2 Plant Formation; Association, Consociation and Society.

3.3 Evolution of Ecosystem and oxygenic development.

Unit IV: Ecosystem Organization.

4.1 Structure and Functions of Ecosystem.

4.2 Abiotic and biotic components; decomposers role in ecosystem.

4.3 Primary productivity (methods of measurements, global pattern and controlling factors)

4.4 Energy Dynamics; Energy flow in Ecosystem, Trophic organization, ecological efficiencies; Ecomodelling.

Unit V: Ecosystem Functional aspects.

5.1 Biogeochemical cycles C, N, P, S; mineral cycles (Pathways, processes and budgets)

5.2 Ecosystem stability concepts, natural and anthropogenic disturbances.

5.3 Major Biomes of the world.

5.4 Terrestrial Biodiversity; Vegetation types of world and India, hot spots.

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Suggested readings:

1) Krebs, C.J. 1989. Ecological Methodology. Harper and Raw, New York, USA.
2) Ludwig, J.A. and Reynolds, J.F. 1988. Statistical Ecology, Wiley, New York.
3) Magurran, A.E. 1988. Ecological Diversity and Its Measurement, Chapman and Hall, London.
4) Pielou, E.C. 1984. The Interpretation of Ecological Data, Wiley, New York.
5) Sokal, R.R. and Rohit, F.J. 1995. Biometry , W.H.Freeman & Co. San Francisco.
6) Murray P.W. and Chapman, S.B. 1986. Methods in Plant Ecology. Blackewell Scientific Publication.
7) Misra, R. 1968. Ecology Work Book, Oxford and IBH New Delhi.
8) APHA - Standard Methods for Examination of Water and Waste Water, American Public Health Association, Washington, D.C.
9) Smith, R.L. 1996. Ecology and Field Biology. Harper Colins New York.

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28) To determine minimum size and number of quadrats required for reliable estimate of biomass in grasslands.
29) To find out association between grassland species using Chi-square test.
30) To compare protected and unprotected grassland stands using community coefficient (similarity indices).
31) To analyze plant community using Bra-Curtis ordination method.
32) To determine diversity indices (Shannon, Wiever, concentration of dominance, species richness, equitability and B-diversity) for protected and unprotected grassland stands.
33) To estimate IVI of the species in woodland using a point centered quarter method.
34) To determine grass and net phytoplankton productivity by light and dark bottle method.
35) To determine soil moisture content, porosity and bulk density of soils collected from varying depths at different locations.
36) To determine the water holding capacity of soils collected from different locations.
37) To determine present organic carbon and organic matter in the soil of cropland, grassland and forest.
38) To estimate the dissolved oxygen contained in eutrophic and oligotropic water samples by azide modification of Winkler's method.
39) To estimate chlorophyll content in SO2, fumigated and unfumigated plant leaves.
40) To estimate rate of carbon dioxide-evolution from different soils using soda lime or alkali absorption method.
41) To study environmental impact of a given developmental activity using checklist as a EIA method.
42) Visit to different forest areas to study ecosystem, bio diversity and biocomplexity. Visit to Molecular Biology laboratories.

Semester – IV

PAPER –XIV: ENVIRONMENTAL ECOLOGY

Unit I: Basic Concepts

1.1 Concept of Environment and its Scope; Lithosphere, Hydrosphere, Biosphere.
1.2 Energy resources; (i) Renewable and non-renewable (ii) Forest types in India and Maharashtra.
1.3 Environmental impact assessment.
1.4 Green House gases; their sources, trend and role.
1.5 Consequences of climate change.

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Unit II: Environmental pollution

2.1 Definition types and sources.

2.3 Air pollution; Natural and man made sources of air pollution, primary and secondary pollutants, toxicity and its impact on environment.

2.4 Soil Pollution: courses of soil pollution, impacts of soil pollution on quality and soil biota.

2.5 Effect of solid waste disposal on soil.

Unit III: Water Pollution.

3.1 Distribution of water and water scarcity.

3.2 Major water pollutants

3.3 Sources of water pollution

3.4 Consequences of water pollution

3.5 Water pollution indicators.

3.6 Bioaccumulation and Biomagnifications of toxic elements in food chain.

Unit IV: Conservation strategies

4.1 Principles of conservation; extinction, environmental status of plants based on IUCN.

4.2 Strategies for conservation. International efforts and Indian initiation.

4.3 Wetlands, Mangrove and coral reefs with respect to conservation of biodiversity.

4.4 Disaster management.

Unit V: Sustainable Management.

5.1 Concept of sustainable development.

5.2 Impact of urbanization; Wasteland development.

5.3 General account of legislative measures for sustainable development and management

(i) Water Act, Prevention and control 1976.

(ii) Environmental Protection Act, 1985

(iii) Wildlife Protection Act, 1972; WWF.

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SUGGESTED READINGS:

1. Eldon D. Enger and Bradley F Smith (1995), Environmental Sciences, WBC publishers Boston.
2. Daniel Botkin and Edward Keller (1997), Environmental Sciences, John Wiley & Sons, Ne York.
3. R.K. Dixit, (1997), Environment, Forest Ecology and Man, Rastogi Publication.
4. Jorgeson S.E. *et al.* (1995), Handbook of Environmental and Ecological modeling, Levis publications, New York.

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13. To determine interaction between grassland species by chi-square test.
14. Comparative study of plant diversity indices.
15. Study of mean, variance, standard deviation, standard error, coefficient of variation and t-test for ecological data.

Semester – IV

PAPER – XV : PLANT BIOTECHNOLOGY

Unit- I: **Biotechnology: Basic concepts, Principle and scope.**

1.1 Cellular differentiation and totipotency

1.2 Plant Cell and tissue culture, Cell Clones, Callus culture.

1.4 Organogenesis and adventitive embryogenesis: Fundamental aspects of morphogenesis, Somatic embryogenesis and its applications.

1.4 Androgenesis: Mechanism, techniques and applications.

Unit-II : Somatic Hybridization:

2.1 Protoplast isolation, Protoplast fusion and protoplast culture limitation , achievement in protoplast research.

2.2 Cybrids and Hybrids, Selection of hybrids and regeneration, Somaclones.

2.3 Clonal propagation: Techniques and significance of artificial seeds.

2.4 Secondary metabolites: Production in tissue/s, enhancing the secondary metabolites by use of elicitors, hairy root cultures and types of elicitors (biotic and abiotic elicitors)

2.5 Cryopreservation : Germplasm storage, methods, merits and demerits.

Unit-III: Plant transformation technology.

3.1 Mechanism of DNA transfers, role of virulence genes, use of Ti and Ri plasmid as binary vectors, features of Ti and Ri plasmid.

3.2 Vector less DNA transfer - Particle Bombardment, Electroporation, and microinjection.

3.3 Genetically modified organisms in the Environment

Unit-IV: Environmental Biotechnology

4.1 Heavy metals environmental modification, Bioleaching and Microbial leaching.

4.2 Bioremediation- General idea of Xenobiotics, Biodegradation of Xenobiotics and applications.

4.3 Phytoremediation: Needs, Metal and organic phytoremediation.

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Unit –V: Applications

NSS

5.1. Microbial genetic manipulation.
5.2 Importance and application of microbes in Biotechnology
5.3 Vermicomposting

Suggested Readings:

1. Bhojwani, S.S. and Razdan, M.K. 1996. Plant Tissue Culture: Theory and Practice (a revised edition). Elsevier Science Publishers, New York, USA.
2. Bhojwani, S.S. 1990. Plant Tissue Culture: Applications and Limitations. Elsevier Science Publishers, New York, U.S.A.
3. Collins, H.A. and Edwards, S., 1998. Plant Cell Culture. Bios Scientific Publishers. Oxford, UK.
4. Jain, S.M., Sopory, S.K. and Veilleux, R.E. 1996. *In Vitro* Haploid Production in Higher Plants, Vols. 1-, Fundamental Aspects and Methods. Kluwer Academic Publishers, Dordrecht, The Netherlands.
5. Kartha, K.K. 1985. Cryopreservation of Plant Cells and Organs. CRC Press, Boca Raton, Florida, USA.
6. Old, R.W. and Primrose, S.B. 1989. Principles of Gene Manipulation. Blackwell Scientific Publications, Oxford, U.K.
7. Primrose, S.B. 1995. Principles of Genome Analysis. Blackwell Science Ltd., Oxford, UK.
8. Raghavan, V. 1986. Embryogenesis in Angiosperms: A Developmental and Experimental Study. Cambridge University Press, New York. USA.
9. Raghavan, V. 1997. Molecular Biology of Flowering Plants. Cambridge University Press. New York, USA.
10. Shantharam, S. and Montgomery, J.F. 1999. Biotechnology, Biosafety, and Biodiversity. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
11. Vasil, I.K. and Thorpe, T.A. 1994. Plant Cell and Tissue Culture. Kluwer Academic Publishers. The Netherlands.
12. Butanco, R.G. 2000. Plant Cell Culture, University Press of Pacific.
13. Collin, H.A. and Edward S., 1998. Plant Cell Culture. Bios-Scientific Publishers, Oxford, UK.
14. Dixon, R.A. (Ed.) 1987. Plant Cell Culture: A Practical approach. IRL Press, Oxford.
15. George, E.F. 1993. Plant Propagation by Tissue Culture. Part-I. The Technology. 2nd Edition, Exegetics Ltd., Edington, UK.
16. George, E.F. 1993. Plant Propagation by Tissue Culture. Part-II in practice, 2nd Edition, Exegetics Ltd., Edington, UK.
17. Hall, R.D. (Ed) 1999. Plant Cell Culture Protocols. Humana Press, Inc. New Jersy, U.S.A.

PAPER-II: RESOURCE UTILIZATION AND CONSERVATION

UNIT I: 1.1 Concept of Biodiversity; Species diversity; Genetic diversity; Ecosystem diversity.

1.2 Origin of Biodiversity; values of Biodiversity; loss of Biodiversity.

1.3 Biodiversity and agriculture; Biodiversity and food diversity; Bioprospecting; commercial values of Biodiversity.

1.4 Conservation of Biodiversity; Implementation process in India CBD.

UNIT II: 2.1 World centers of primary diversity of domesticated plants; Indo Burmese centers.

2.2 Plant introduction and secondary centers.

2.3 Origin, evolution, botany, cultivation and uses of:

i. Food, Forage and Fodder crops.

ii. Fibre crops.

iii. Medicinal and Aromatic plants.

iv. Vegetable and Oil yielding plants.

UNIT III: 3.1 Important fire wood and timber yielding plants and non wood forest products (NWFPS) such as Bamboo, Rattam raw materials for paper making, gums, resins, tannins, dyes, fruits

3.2 Green revolution; Benefits and adverse consequences, sustainable agriculture, agroecosystem approach.

3.3 Innnovative approaches for meeting world food demands; modern agricultural approach.

3.4 Plants used as Avenue trees' for shade, pollution control and aesthetics.

UNIT IV:4.1 Strategies for conservation of Biodiversity, global scenario, decline of bioresources.

4.2 Protected areas concept: Sanctuaries, National parks, Biosphere reserves (Tiger reserves with reference to Melghat Tiger Project) Wildlife Management and Sacred groves.

4.3 Conservation of wild germplasm with reference to threatened species.

UNIT V :5.1 Principles and practices for *Ex-situ* conservation, Botanical gardens, Field Gene Banks, Seed Banks.

5.2 *In-vitro* repositories, Cryobanks, Legal aspects of conservation of Biodiversity in India.

5.3 General accounts and activities of national institutes like Botanical Survey of India (BSI), National Bureau of Plant Genetic Resources (NBPGR), Indian Council of Agricultural

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Unit - II: Metabolism-

2.1 Photosynthesis - Introduction, Role of Light, Photosynthetic Apparatus and Pigments, Two Pigment Systems, Photophosphorylation, C3 and C4 cycle, CAM Pathway.

2.2 Respiration - Introduction, Mitochondria as a Respiratory centre, Types of Respiration - Aerobic and Anaerobic, Mechanism of aerobic respiration- Glycolysis, Kreb cycle, Electron transport system and Chemiosmotic ATP generation, Respiratory Quotient.

Unit - III: Metabolism and growth

3.1 Nitrogen Metabolism- Sources of nitrogen, Symbiotic nitrogen fixation, Role of Nitrate reductase.

3.2 Growth - Phases of growth, Growth curve, Physiological role of growth hormones (Auxins, Gibberellins, Cytokinins, Abscisic acid, and Ethylene).

3.3 Physiology of Senescence and Abscission.

Unit – IV: Plant responses

4.1 Photoperiodism - Concept of Florigen, Role of Phytochrome,

4.2 Vernalization- Concept and Significance.

4.3 Plant movement- Tropic (Phototropic and Geotropic) and Nastic (Epinasty, Hyponasty and Seismonasty)

4.4 Stress physiology- Concept, Types of stress, Water and Salinity stress.

Unit – V: Ecology and Environment:

5.1 Concept of environment, Concept and scope of ecology.

5.2 Ecological factors- Climatic- Light, Temperature and Water.

5.3 Atmosphere and its composition.

5.4 Edaphic factor- Process of soil formation, soil profile, soil biota and their role.

5.5 Ecological Adaptations - Morphological and Anatomical adaptation in Hydrophytes, and Xerophytes.

Unit – VI: Ecosystem:

6.1 Population Ecology- Natality and Mortality, Community characteristics – Frequency, Density and Abundance

6.2 Ecological Succession - Hydrosere and Xerosere

6.3 Ecosystem – Definition, Structure and Function,

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Food chain, Food web, Energy flow model (Single channel model)

6.4 Types of Ecosystem- Pond ecosystem, Desert ecosystem.

LABORATORY EXERCISE :

Plant Physiology: Major experiment (Any Seven)

1. To study the effect of temperature and organic solvent on permeability of plasma membrane.
2. To study osmotic pressure of cell sap by plasmolytic method.
3. To determine water potential of plant tissue.
4. To determine the path of water (ascent of sap)
5. To determine the rate of transpiration by Ganongs photometer.
6. To determine rate of photosynthesis under varying quality of light and CO_2 concentration.
7. To study the rate of photosynthesis in terrestrial plants with the help of Ganongs Photosynthometer.
8. Separation of chloroplast pigments by paper chromatography/ solvent extraction method.
9. Separation of amino acids by paper chromatography method.
10. To determine R.Q. using different substrates.
11. To determine the rate of respiration by Ganongs respirometer.
12. To study antagonism of salts.
13. To study phenomenon of adsorption.
14. To study effect of IAA and Gibberellins on seed germination.
15. Test for secondary metabolites- Alkaloid, Phenolics, Tannin, Flavonoids and Lignin
16. To study Endo and Exo-osmosis by egg membrane osmoscope

Plant Physiology: Minor experiment- (Any Three)

1. To demonstrate fermentation.
2. To demonstrate exo and endosmosis
3. To demonstrate transpiration by Bell jar.
4. To demonstrate light is necessary for photosynthesis
5. To demonstrate anaerobic respiration in germinating seeds.
6. To demonstrate the evolution of CO_2 in respiration.
7. To demonstrate the phenomenon of nastic movement with help of *Mimosa pudica* / or *Biophytum sensitivum.*

Ecology: Major experiment (Any Three)

1. Study of morphological and anatomical adaptations in hydrophytes – *Hydrilla, Eichhornia, Typha, Vallisneria* and *Nymphaea* (any two)

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M.Sc.I : Zoology

Semester – II

PAPER VIII

ENVIRONMENT AND ECOLOGY

Unit-I : 1.1. The Environment:

1.1.1 Physical environment;

1.1.2 Biotic environment;

1.1.3 Biotic and abiotic interactions.

1.2. Habitat and niche:

1.2.1 Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement.

1.3. Population ecology: Characteristics of a population; population growth curves; population regulation; life history strategies (r and k selection); concept of metapopulation, demes and dispersal, interdemic extinctions, age structured populations, Diversity Index: Simpson's index, Shannon's index

1.4. Species interactions: Types of interactions, interspecific competition, herbivore, carnivores, pollination, symbiosis.

Unit II : 2.1. Community ecology:

2.1.1 Nature of communities; community structure and attributes;

2.1.2 Levels of species diversity and its measurements;

2.1.3 Edges and ecotones.

2.2. Ecological succession: Types; mechanisms; changes involved in succession; concept of climax.

2.3. Ecosystem:

2.3.1 Structure and function; energy flow and mineral cycling (CNP);

2.3.2. Primary production and decomposition;

2.3.3. Structure and function of some Indian ecosystems;

2.3.3.1. Terrestrial (forest, grassland).

2.3.3.2. Aquatic (fresh water, marine, estuarine).

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2.4. Biogeography:

2.4.1. Major terrestrial biomes;

2.4.2. Theory of island biogeography;

2.4.3. Elementary idea of, bioigeographical zones of India.

Unit III : 3.1. Environmental Pollution-

3.1.1. Sources nature and effects of air pollutants

3.1.2. Sources nature and effects of Water pollution

3.1.3 Biodegradation and bioremediation

3.1.4 Biotechnological methods for Management of pollution

3.2. Global climate change; Global warming, Global dimming,

3.3 Biodiversity-statuses;

3.3.1. Monitoring and documentation;

3.3.2. Major drivers of biodiversity change;

3.3.3. Biodiversity management approaches,

3.3.4. Economics of Biodiversity

Unit-IV : 4.1 Conservation biology:

4.1.1. Principles of conservation; major approaches to management, Indian case studies on conservation/management strategy:

4.1.2. Sanctuaries and National Parks,

4.1.3. Project Tiger,

4.1.4. Biosphere reserves.

4.2 Toxicology

4.2.1. Metabolism & effects of Organochlorine, organophosphate and carbamate pesticides

4.2.2 Metabolism & effects of alkaloids, barbiturates, alcohol & cyanides.

4.2.3. Metabolism & effects of heavy metal salts.

4.2.4. Formation & effects of free radicals.

4.2.5. Biochemistry of Detoxification – Phase I & phase II reactions.

Unit-V : 5.1 Environmental Monitoring:

5.1.1- IGPCC (Inter Government Policy/ Protocol for Climate change)

5.1.2- EPA (Environmental Protection Agency)

5.1.3- Laws, legislation pertaining to environment

5.1.4- Control, monitoring & surveillance of environment.

5.1.5- IPR (Intellectual Property Rights) ; Patents need how to obtain in India & abroad, patent offices in India.

5.2. Environmental Impact Assessment Processes:

5.2.1. EIA of reservoirs and Coal mines, thermal Power stations

Suggested reading materials: (All recent editions)

1. Toxicology - A Sood , Sarup & Sons, New Delhi.
2. Biodegradation of pesticides - G. N. Vankhede , Bajaj Publication
3. Environmental biodegradation, Ramkumar, Sarup & Sons , New Delhi
4. Toxicology by Parikh.
5. Poisoning by drugs & chemicals - Cooper
6. Animal Physiology, mechanism & Adaptation - Eckert, Marshall
7. Animal Physiology, Principal & Adaptation- Garden M. S.
8. Human Physiology- C. C. Chatterji Vol. I and II
9. Analytical toxicology of inorganic poisons - Jacob M.B
10. Environmental management of toxic and hazardous chemical - Madhuraj
11. Environmental Biology - J. L. Blish
12. Fundamental Ecology - Odum
13. Environmental Physiology - Philips G.
14. Toxicology mechanism & analytical methods - Stewarts & Straiman
15. Environmental Impact Assessment: G.N. Vankhede Biotech Publishers, Delhi
16. Ecology and Biogeography of India, Mani, M.S. : 1974. Junk. Publ. The Hague.
17. Comparative Vertebrate Endocrinology, Bentley: Cambridge University Press, 1998
18. Fundamentals of Comparative Endocrinology, Chester-Jones et al. Plenum Press,

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Practicals : 24

1. Detection of carbohydrates in n given sample - Molish test.
2. Estimation of the concentration of reducing sugar -Benedict's Test.
3. Demonstration of breakdown of starch to monosaccharides with Hydrochloric acid.
4. Detection of proteins using colour reactions.
   - Biuret test
   - Xanthoproteic test
   - Million's test.
5. Detection of fats using-
   - Solubility Test
   - Emulsification
   - Bromine Water Test
   - Saponification
6. Detection of Iodine from salt.
7. Estimation of Vitamin C in a given sample.
8. Estimation of Iron in a given sample.

References :-

1. Pottern N. and Hotchkiss, J.H. (1996), Food,Science; C.B.S. Publishers and distributers, New Delhi.
2. Duck Worth, R.B. (1978), Water Retension to Foods, Academic Press, London.
3. Peckham, G.G. (1969); Foundation of Food Preparation, McMillan Co.
4. Fox B.A. and Cameron, A.G.; Food Science and Chemical Approach; University of London, 1970.
5. Kraner, A. and Twing B.A.; Fundamentals of Quality Control for food industry, The AVI Publishing Co, 1966.
6. C.Gopalan, B.V.Rama Sastri, S.C.Balasubramanian (2004), Nutritive Value of Indian Foods, National Institute of Nutrition, ICMR, Hyderabad.

Subject Code 115EE6

Ecology and Environment

Theory : 3 Periods/Wk/(Credits 2.4) Theory Marks : 40
Practical : 4 Periods/Wk/(Credits 1.6) Th.Int.Ass.Marks: 10
Practical Mks. : 20
Practical Int.Ass.Mks.:10
Total Mks. : 80

Objectives :- To make students aware of Environment and Ecology.

Theory

Unit-I :

- Introduction :- Meaning and definitions of ecology and environment, scope of subject, dimensions of environment, land, air, water, forest, habitat, population.
- Environmental Education :- Meaning, need, objectives & types. Role of Government, N.G.O's and Educational institution.
- Human Rights.

Unit-2 :

- Land :- As a resource, energy and mineral resources. Land pollution – Sources, smelting, mining, industrial waste, domestic waste, agriculture. Major health hazard. Prevention and control.
- Water:- Utility of water, water pollution and scarcity. Pollutants, health hazards and their control.

Unit-3 :

- Forest :- Utility of forest and forest resources, deforestation and its impact. Forest conservation.
- Wild Life :- Endanger of species. Wild life preservation programmes, sanctuaries.

Unit-4 :

- Energy – Major sources of energy -- Definition and classification.
- Non-renewable energy sources – Coal Natural Gas, mineral oils, radiological substances.
- Renewable energy sources – Solar energy, wind power, wave power, flux and reflux, Earth Power, Hydro Electricity, Biomass, Biogas.
- Uncertainties with Non-renewable energy sources.
- Alternative Energy sources and Energy conservation measures.

Unit-5 :

- Basic Gardening – Types of soil, plant nutrients and use of fertilizers (Biofertilizer, Vermicompost). Basic Garden Plants & their classification. Cultivation of oyster mushroom.

Practicals :

(1) Study of Garden Equipment.
(2) Chemical characteristics of soil.
Simple test – Mechanical composition of soil.
(3) Determination of C-O-D & B-O-D in given sample of water.

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Semester IV.

		Marks Allotted
1)	**Paper-I:** Advanced Genetics and Animal Ecology.	
	Written examination.....	80
	Internal assessment	20
2)	Practical:	50
	Total:	**150 Marks**

ZOOLOGY Paper 4 S
ADVANCED GENETICS AND ANIMAL ECOLOGY

UNIT I : Concept of genes.

Mendel`s laws of hereditary – Monohybrid – Laws of dominance, law of segregation. Dihybrid cross – Law of independent assortment. Interactions of genes: , Supplementary factor, complementary factor, duplicates factor, inhibitory factors, and lethal factors – dominant and recessive.

UNIT II : **Linkage** - Types of linkage, linkage group, arrangement of linked genes, and significance of linkage.

Crossing over – Mitotic and meiotic crossing over, Mechanism of crossing over, theories of crossing over – Darlington's theory, breakage and exchange theory, and copy choice theory. Types of crossing over – Single, double and multiple crossing overs. Factors affecting crossing over, Significance of crossing over.

Multiple alleles. Multiple alleles in relation to eye color in Drosophila.Blood group in man, Erythroblastosis foetalis

UNIT III : **Sex determination:** Autosomes and sex chromosomes, Sex determination in animals, Chromosomal Theory. Genic Balance Theory. Environmentally and hormonally controlled sex determination, Gynandromorphs.

Genetic disorders; Sickle cell anemia, , Huntington's chorea. Diabetes mellitus. Non-disjunction: Turner's syndrome, Klinefelter's syndrome, Down's syndrome.Edwrd`s

Syndrome,Biochemical genetics:;Cystic fibrosis, Phenylketonuria, Albinism, Alkaptonuria, Goiters, cretinism. Sex linked genetic disorders and their inheritance in man; Hemophilia and color blindness.

UNIT IV : **Genetic Screening and parental diagnosis: -** Parental, Carrier, Predictive, CVS (Chorionic Villous Sampling), Amniocentesis, Gene probe and DNA analysis. Genes in Human Heredity: - Inheritance of eye color. Skin color. Recessive genes and consanguineous marriages Genetic counseling: - Risk of marriages in affected family. Birth control measures (male and female).

Kinds of twins: - Identical, Fraternal, Siamese twins. .Significance of twins study

UNIT V : **Ecology:** concept and scope:

Abiotic factors:

Water: Properties, water problem in terrestrial and aquatic habitat. **Temperature:** Temperature range, Temperature tolerance, Effects of temperature on animals. Homeotherms, poikilotherms. Dormancy, hibernation, aestivation & diapauses. **Light**: Spectral

distribution, Biological effects of light on aquatic and terrestrial animals: Reproduction, Metamorphosis, pigmentation, vision, photo kinesis, phototropism, photoperiodism, migration.

Biotic factors:

Intra specific and interspecific associations, Predation, parasitism, Antagonism. , commensalisms, mutualism, competition, (Gauze's Principle).

UNIT VI : **Ecosystem:** *Relationship between habitat and ecological niche* - Autotrophic and heterotrophic producer, consumer - trophic level - energy flow in an ecosystem - food chain - food web - pyramids - Ecotypes. Homeostasis of ecosystem.

Terrestrial ecosystem: Classification and Biomes, Aquatic ecosystem: Fresh water ecosystem-Lentic and lotic ecosystem,

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References

1. Stuart Dabbs Halloway(2002)Component Development for the Java platform: Addison-Wesley
2. Michael Zeiler, 2001. Exploring ArcObjects: ESRI

303- Geoinformatics Applications in Natural Resources Management

Unit 1 : Natural Resource Evaluation: Need – objectives – sources of data – limitations – need for evaluation in development planning

Unit 2 : Land Evaluation: Objectives – principles – procedures – approaches – land use requirements and land quality parameters – layer creation – matching – classification – case studies.

Unit 3 : Wastelands: Types – identification – management – eroded lands – types – layer creation – case studies.

Unit 4 : Water Resources: Surface water: precipitation – space time analysis – overland flow – storage – groundwater: potential – quality – layer creation – overlay analysis – integrated watershed development – case studies.

Unit 5 : Natural Vegetation: Forests – classification (NRSA) – grasslands – layer creation overlay – management – case studies.

Text Books

1. Fischer, M., H.J. Scholten, and D. Unwin, 1996. Spatial Analytical Perspectives on GIS , Taylor & Francis, London, UK.
2. Michael F. Goodchild, Louis T. Steyaert, Bradley O. Parks, 1996. GIS and Environmental Modeling: Progress and Research Issues. Fort Collins, CO 80525: GIS World Inc.

References

1. Ripple, William J. (ed.). 1994. The GIS Applications Book: Examples in Natural Resources: A Compendium , American Society for Photogrametry and Remote Sensing, Bethesda, Maryland.
2. Young, Haines, David Green, and Steven Cousins (eds.), 1994. Landscape Ecology and GIS , Taylor & Francis, Bristol, P.A.
3. Fotheringham, S., and P. Rogerson, Ed. 1995. Spatial Analysis and GIS , Taylor & Francis, London, UK.

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304- Geostatistics

Unit 1 : Fundamental concepts -Histogram – univariate and bivariate, estimation of basic statistical parameters, viz., mean, standard deviation, variance, correlation, covariance. Introduction to probability theory. Kinds of probability – classical or apriority probability,

Unit 2 : Random variables, Distribution functions and expectation: Introduction and summary, Cumulative distribution function, Density function, Expectations and moments.

Unit 3 : Estimation theory: Introduction and summary, methods of finding estimators, properties of point estimators, unbiased estimation, Sampling and sampling distribution, sample mean, sampling from normal distribution.

Unit 4 : Testing of hypothesis: Introduction and summary, simple hypothesis testing, composite hypothesis, tests of hypotheses – sampling from normal distribution, chi-square tests, tests of hypotheses and confidence intervals, sequential test of hypotheses.

Unit 5 : Geostatistics – introduction, The variogram – calculation, interpretation, Variances, covariances, Krige's volume-variance relationship. Extension variances and estimation variances – simple calculations in one and two dimensions. Optimal estimation – introduction to kriging, Linear, Non-linear and Multivariate Geostatistics

Text Books

1. Noel Cressie, 1991.Statistics for Spatial Data, John Wiley & Sons
2. Isaaks, E. H. and R. M. Srivastava. 1989. An Introduction to Applied Geostatistics. Oxford Univ. Press, New York, Oxford

References

1. Yang, X. S., 2009, Introductory Mathematics for Earth Scientists, Dunedin Academic Press
2. Volk, W, 1980, Applied Statistics for Engineers, Krieger Publishing Company, Huntington, New York
3. Wackernagel, H. 2003. Multivariate geostatistics, Third edition, Springer-Verlag, Berlin

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Text Books

1. Korte,G. B., (2001) The GIS book: 5th Edition, Onward press, Australia. Cartwright, W., M.P. Peterson, G. Gartner (Eds) Multimedia Cartography, Berlm: Springer.
2. Kraak,M., and A. Brown (2001) Web Cartography: Development and Prospects, London: Taylor and Francies.

References

1. Kraak, M. and F. Ormeling (2003) Cartography: Visualization of Geospatial Data, Delhi: Pearson Education.
2. Ron Lake, David S. Burggraf, Milan Trninic, Laurie Rae, 2004, Geography mark-up language (GML) John Wiley & Sons Ltd.

403- Geoinformatics Applications in Agriculture

Unit 1 : Crops: Introduction - Agriculture Ecosystems, Yield parameters, spectral properties of crops, identification of crops and acreage estimation, vegetation indices, production forecasting through digital analysis, monitoring and condition assessment - case studies.

Unit 2 : Soils: introduction - Soil survey methods, soil classification, Land evaluation, Saline, alkaline soils, soil mapping, soil identification and mapping of problem soils, sedimentation and erosion, soil conservation - case studies.

Unit 3 : Field-scale applications of RS and GIS: soil moisture content assessment, crop phenologic stage identification, crop biomass and yield production estimation, crop disease, weed and insect infestation detection and monitoring, farms mapping, cropping system analysis, agro-ecological zoning.

Unit 4 : Retrieval of agrometeorological parameters from satellites, floods and droughts assessment and monitoring, water and wind induced soil erosion assessment and monitoring

Unit 5 : Precision Agriculture: Definition and rationale: agronomy, environment, economics. Tools: variable rate technology (VRT), GPS, GIS, Yield monitoring and mapping, Developing prescriptive maps for VRT management, Applications

Text Books

1. Pierce J.Francis and Clay David, 2007, GIS Applications in Agriculture, Taylor & Francis Group

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2. Steven, M.D. and Clark, J.A., Butterworths, 1990, Application of Remote Sensing in Agriculture, London.

References

1. Ripple, William J. (ed.). 1994. The GIS Applications Book: Examples in Natural Resources: A Compendium , American Society for Photogrametry and Remote Sensing, Bethesda, Maryland.
2. Young, Haines, David Green, and Steven Cousins (eds.), 1994. Landscape Ecology and GIS , Taylor & Francis, Bristol, P.A.
3. William Ripple,1986, Geographic Information Systems for Resource $60.00 Management, ACSM.

404- Geoinformatics Applications in Water Resources Management

Unit 1 : Introduction: Hydrologic cycle, components of hydrologic cycle - processing and parameterization in hydrology; Water resource scenario in India, Hydrological modeling. GIS applications in water resources development and management.

Unit 2 : Spectral properties of water. Floods types; causes and mitigation measures, flooding potential zonation mapping, flood hazard assessment, flood risk analysis using RS and GIS, RS and GIS in Cyclone mapping and mitigation, digital surface modeling and flood hazard simulation.

Unit 3 : Groundwater, hydro geomorphology, Ground water potential assessment, groundwater prospect zones mapping, ground water modeling, ground water information system, planning and management of ground water. Groundwater quality mapping. Ground and surface water interactions

Unit 4 : Irrigation management: Mapping and monitoring of catchments and command areas, land irrigability, soil irrigability mapping, irrigation canal alignment, crop norm violation, agriculture water demand estimation for different crops, tank information system, wet land mapping, siltation mapping, optimum usage planning and management of irrigation water.

Unit 5 : Watershed management: Watershed- Drainage and water body mapping, morphometric analysis, classification, delineation and coding of watersheds, reservoir

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Unit IV : Nitrogen metabolsim : Strcture of root nodule and organisation of plant nitrogenase system. Formation and assimilation of ammonia; Reduction of nitrate and mechanism of nitrogen fixation.

Unit V : Sulfur metabolism : Sulphate Activation, physiological importance of sulfate activation, Reduction of active sulfate, Respiratory and photosynthetic sulfur metabolism. Oxidation of inorganic sulfur.

Paper - XVI

(Plant Nutrition and Reproduction)

Unit I : Concept of plant tissue culture and its application, various techniques of plant tissue culture.

Unit II : Reproduction in plants. Physiology of flowering senescence and seed formation. Biochemistry of fruit development and ripening. Physiology and biochemistry of seed dormancy and germination. Biochemical changes during germination of seeds.

Unit III : Phytohormones : Hormonal regulation of growth and development Synthesis, translocation metabolism and biochemical mode of action of auxins, Gibberelins, cytokins, Abscisic acid and Ethylene.

Unit IV : Water relations : Mineral nutrition in plants and translocation of elements from soil to plants, translocation of elements within the plant. Factors affecting salt absorption and translocation.

Unit V : Biochemistry of plant diseases and biochemical basis of resistance to plant diseases and defensive mechanisms.

M. Sc. II - Biochemistry

Semester - IV

Practical - VII

(Plant Biochemistry)

1) To study water imbibation of line and dead seeds.
2) To study kinds of germination
3) Assay of amylase and change in sugar content in germinating seeds.
4) Estimations of Ascorbic acid in germinating seeds.
5) Demonstration of presence of aseorbic acid in vegetable by dye method.
6) Isolation of chloroplast from Spinach Leaves.
7) Estimation of chlorophyll -a and -b from isolated chloroplast.
8) Separation of green plant pigments by column chromatography.

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ii) Internal Assesment – i) One Unit Test - 06 marks
ii) One Assignment - 04 marks
Total 10 marks

List of Reference Books :

1. Intermediate English Grammar, Raymond Morphy, Publisher- Cambridge.
2. Macmillan Foundation English, R.K. Dwivedi & A. Kumar, Publisher- Macmillan India Limited.
3. Cornerstone Developing Soft skills, Robert Sherfield , Rhoda Montgomerry & Patricia Moody, Publisher- Pearson Education.
4. English for Life Skills, Publisher Orient Blackswan

Names of the books & its publisher from where the prescribed prose and poetry pieces are available :

1. Modern Trailblazers, Akshay Dhote, Hitendra Dhote, Orient Blackswan
2. Visonery Gleam, Orient Blackswan
3. Poetry Down the Ages, Orient Blackswan
5. Auroral Musings, Orient Blackswan
6. Rainbow, publisher Orient Blackswan
7. Poetic Symphony, an anthology of sonnets, elegies, odes and ballads, Orient Blackswan
8. Literary Landscapes, an anthology of prose and poetry, Orient Blackswan

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Appendix-B

Syllabi prescribed for B.Sc.Part-I (Sem-I & II) to be implemented from the A.S. 2017-18

Semester-I
1S: Geology
General Geology, Physical Geology, Mineralogy, Crystallography & Field Geology

UNIT-I : General Geology: definition of geology, branches and scope. Earth in the solar system Origin of the earth: Nebular, Planetesimal and Tidal hypothesis, Age of earth: relative and radioactive methods of age determination – U/Pb, Rb/Sr, K/Ar and Carbon-14 method. constitution of earth: crust, mantle and core. Lithosphere, hydrosphere, atmosphere and biosphere.

UNIT-II : **Physical Geology**: Rock weathering – physical weathering, chemical weathering and biological weathering. Geological work done by wind, Rivers, underground water and Glaciers.

UNIT-III : **Physical geology**: Volcanism: Structure of volcano, products of volcanoes. Types of volcanic eruption, Causes and distribution of volcanoes. Earthquakes: definition, terminology, Elastic rebound theory – causes, effects, magnitude and intensity; Seismogram and Seismograph. Classification of earthquake; Seismic belts of India. Diastrophism – epeiorogenic and orogenic movements; Stages in orogenic cycle.

UNIT-IV : **Mineralogy**: definition of mineral, rock forming & ore minerals, Physical properties of minerals: Determination of specific gravity by Walker's steelyard & Jolly's spring balance. structures of Silicates ,Physical, chemical, optical properties of Feldspar, Mica, Pyroxene, Amphibole, Garnet and Olivine groups mineral groups. Optical mineralogy – Nature of light, Ordinary and plane polarized light; Reflection and refraction, total internal reflection and critical angle; Double refraction - Nicol prism,becke line Petrological microscope – its parts and functioning. Properties of minerals under ordinary and plane polorized light and between cross Nicol.

UNIT-V : **Crystallography** – Elementary idea about crystal structure: crystal, forms, faces, edges, solid angle and interfacial angle and its measurement. Laws of crystallography Crystal symmetry: planes, axes, centre, crystallographic axes. Miller's indices and Weiss Parameters. Classification of crystal in to seven systems with their symmetry elements of normal classes; Cubic, Orthorhombic, Tetragonal, Hexagonal, Monoclinic and Triclinic.

UNIT-VI : **Field Geology**: Significance of geological field work, Study of toposheet: numbering, latitude, longitude, scale and conventional sings. Surveying- various types, use and aim. Introduction to surveying equipment's.

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PART TWO

Thursday, the 27th June, 2019

NOTIFICATION

No. 56 / 2019 Date: 27/6 /2019

Subject : I) Introduction of new syllabi for the subject Geology at B.Sc. Part-III (Sem. V & VI) level, which to be implemented from the academic session 2019-20.

II) Introduction of new syllabi for B.Sc. Part-III (Semester-V & VI) Computer Science / Computer Application/ Information Technology/Computer Application(Vocational)which to be implemented from the academic session 2019-20.

I) It is notified for general information of all concerned that the authorities of the University has introduced new syllabi for the subject Geology at B.Sc. Part-III (Sem. V & VI) level, which to be implemented from the academic session 2019-20. Hence, the page Nos. 42 to 46, appearing in prospectus No. 2016123 be substituted respectively by the "APPENDIX-A", which is appended with this notification.

II) It is notified for general information of all concerned that the authorities of the University has introduced new syllabi for B.Sc. Part-III (Semester-V & VI) Computer Science / Computer Application/ Information Technology/Computer Application(Vocational), which to be implemented from the academic session 2019-20. Hence, the page Nos. 88 to 97, appearing in prospectus No. 2016123 be substituted respectively by the "APPENDIX-B", which is appended with this notification.

Sd/-
(Dr. T.R.Deshmukh)
Registrar,
Sant Gadge Baba Amravati University

APPENDIX-A

SYLLABI PRESCRIBED FOR B.SC. FINAL TO BE IMPLEMENTED FROM THE A.S. 2019-20
SEMESTER- V
5S : GEOLOGY
ECONOMIC GEOLOGY AND MINERAL EXPLORATION

UNIT I : Economic geology: Introduction, purpose and scope; Metallic and non metallic minerals, ore, ore deposits, gangue minerals, tenor and grade of the ore; Processes of ore formation, types of deposits, distribution of mineral deposits in space and time, metallogenic epochs and provinces, geological thermometers; Classifications of mineral deposits, magmatic concentration deposits, contact metasomatic deposits.

UNIT II : Sedimentary deposits, hydrothermal deposits (cavity filling and replacement), evaporation deposits, colloidal deposits, residual and mechanical concentration deposits, oxidation and supergene sulphide enrichment deposits, metamorphic and metamorphosed deposits.

UNIT III : Mineralogy, properties, uses, origin, mode of occurrence, types of deposits, geological and geographical distribution in India of the metallic mineral deposits like gold, iron, copper, lead, zinc, manganese, aluminium and chromite.

UNIT IV : Mineralogy, properties, uses, origin, mode of occurrence, types of deposits, geological and geographical distribution in India of non-metallic deposits like asbestos, mica, gypsum, barite, magnesite and limestone. Properties, classifications, origin, uses, geological and geographical distribution of coal deposits of India. Origin and migration of oil, oil trap and its types, geological and geographical distribution of Petroleum deposits of India.

UNIT V : Mineral exploration and prospecting, definition and scope, surface methods of exploration and their applications, sub surface methods of exploration like, gravity, magnetic, electrical, seismic, radiometric, geochemical and geobotanical methods and their applications in Geology.

UNIT VI : Guides and controls of ore localization, sampling-Its types, calculations and computation of grade and ore reserves, geochemical cycle and dispersal; Strategic, critical and essential minerals.

Practicals

A. Identification of ore minerals by Physical properties (40 to 60 specimens)
B. Identification of industrial Minerals by physical properties (20 to 30 specimens)
C. Exercises showing major metallic and non metallic minerals on India map (6 to 10 maps)
D. Exercises on calculations on grade and ore reserves (6 to 10 problems)
E. Laboratory exercises in solving exploration problems (8 to 10 problems)

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Practical Examination

Practical Examination will be of four hours duration and carries 50 Marks. The distribution of Marks will be as follows,

I.	Identification of ore minerals (5 nos.)	10 Marks
II.	Identification of industrial minerals (5 nos.)	10 Marks
III.	Exercises of metallic and non-metallic deposits of India on maps (2 maps)	4 Marks
IV.	Laboratory exercises in solving exploration problems (2 problems)	8 Marks
V.	Exercises on calculations and grades of ore reserves (2 problems)	8 Marks
VI.	Practical record	5 marks
VII.	Viva – voce	5 marks

Total- 50 Marks

Books Recommended :

1. McKinstry, H.E. (1972) Mining Geology. Prentice – Hall Inc.
2. Arogyaswamy, R.N.P. (1995) Courses in Mining Geology. Oxford and IBH publishing Co., New Delhi.
3. Bagchi, T. C., Sen Gupta, D. K. and Rao, S.V.L.N.(1979) Elements of Prospecting.
4. Jensen, M.L. and Bateman, A.M.(1981) Economic Mineral Deposits. John Wiley and Sons, New York.
5. Deb, S. (1980) Industrial Minerals and Rocks of India. Allied Publishers, New Delhi.
6. Howel, B.F. (1959) Introduction to Geophysical prospecting. McGraw Hill.
7. Lowrie, W. (1997) Fundamentals of Geophysics. Cambridge University Press.
8. Sen, A.K. and Guha, P.K. (1993) a handbook of Economic Geology. Dynamic printers, Kolkata.
9. Banerjee, D.K. (1992) Mineral resources of India. The World Press Pvt. Ltd., Kolkata.
10. Sharma, N.L. and Ram, K.S.V. (1964) Introduction to India's Economic minerals, Dhanbad Publishers.
11. Dobrin, M.B. (1952) Introduction to Geophysical Prospecting. McGraw Hill.
12. Park, C. F. and MacDiamid, R.A Ore Deposits. Freeman and company, Saint Francisco.
13. Sinha and Sharma . Mineral Economics.
14. Krishnaswamy, S. (1979) India's Mineral Resources. Oxford IBH, Pub. Co. New Delhi.
15. Prasad Umeshwar. Economic deposits of India. CBS Publishers, New Delhi.

SEMESTER – VI
6S : GEOLOGY
HYDROGEOLOGY, REMOTE SENSING, ENGINEERING GEOLOGY AND GEOLOGICAL SKILL

UNIT I : Concept of hydrology, hydrogeology and ground water, Hydrologic cycle and its components, Occurrence and distribution of ground water, Water Table, Aquifer and its types – confined, unconfined and semi-confined, Properties of aquifer- porosity, permeability, specific yield, safe yields, storage coefficient, storativity and transmissivity.

UNIT II : Recharge and discharge, Cone of depression, Influent and affluent seepages, Springs and its types. Ground water Provinces of India. Geophysical investigations for groundwater exploration, Groundwater and water quality services, Hydrochemical parameters of ground water (Acidity, Alkalinity, Hardness, pH, Conductivity) Recharge through wells and its types. Rain water harvesting.

UNIT III : Aerial photographs and its types, Satellite imageries. Methods of studying aerial photographs in the form of stereo-pairs and mossaic. Pocket and mirror stereoscopes, Overlap and sidelap, Drift and crab. Photogeology and elements of photorecognition- tone, texture, shape, size, pattern; Scale of photograph and vertical exaggeration. Guidelines for lithological, structural and geomorphic interpretations. Applications of photogeology. "Introduction and scope of photogeology".

UNIT IV : Concept of remote sensing, types of remote sensing systems (active and passive), Elements of passive remote sensing system (data acquisition and data analysis); applications of remote sensing in studying the natural resources like minerals, ground water, soil and forests. Satellites and Satellite data - introduction and brief history, types of satellites, information obtained with reference to latest IRS & LANDSAT satellites. Sensors – types and their applications.

UNIT V : Engineering Geology – introduction, scope and significance, engineering properties of rocks - specific gravity, porosity, crushing strength, compressive strength, and tensile strength. Tunnels - terminology, geological conditions for tunnel sites, tunnels in folded rocks and bedded rocks. Dams – terminology, geological conditions for the selection of dam, Types of dams - Masonary dams (Gravity buttress and Arch types), earthen dams. Landslides - causes, types and prevention of landslides.

UNIT VI : Geological skill development - Role of geological expertise in local natural resources investigation, exploration and mining, beneficiation of minerals; Rocks and minerals thin section making, Civil engineering services, Environmental services, . Soil quality testing and conservation services, Laboratory and Research Technician. Geoheritage.

PRACTICALS: SEMESTER – VI

1. Plotting of ground water provinces on outline map of India.
2. Problems on determination of aquifer parameters, ground water table maps.
3. Interpretation of aerial photographs and satellite imageries.
4. Field work : Field work is an Integral part of Geology Syllabus. Every student should attend field work for a short duration and submit field diary, geological specimen collected and a report.

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Practical Examination

Practical Examination will be of four hours duration and carries 50 Marks. The distribution of Marks will be as follows,

I.	Identification of ore minerals (5 nos.)	10 Marks
II.	Identification of industrial minerals (5 nos.)	10 Marks
III.	Exercises of metallic and non-metallic deposits of India on maps (2 maps)	4 Marks
IV.	Laboratory exercises in solving exploration problems (2 problems)	8 Marks
V.	Exercises on calculations and grades of ore reserves (2 problems)	8 Marks
VI.	Practical record	5 marks
VII.	Viva – voce	5 marks

Total- 50 Marks

Books Recommended :

1. McKinstry, H.E. (1972) Mining Geology. Prentice – Hall Inc.
2. Arogyaswamy, R.N.P. (1995) Courses in Mining Geology. Oxford and IBH publishing Co., New Delhi.
3. Bagchi, T. C., Sen Gupta, D. K. and Rao, S.V.L.N.(1979) Elements of Prospecting.
4. Jensen, M.L. and Bateman, A.M.(1981) Economic Mineral Deposits. John Wiley and Sons, New York.
5. Deb, S. (1980) Industrial Minerals and Rocks of India. Allied Publishers, New Delhi.
6. Howel, B.F. (1959) Introduction to Geophysical prospecting. McGraw Hill.
7. Lowrie, W. (1997) Fundamentals of Geophysics. Cambridge University Press.
8. Sen, A.K. and Guha, P.K. (1993) a handbook of Economic Geology. Dynamic printers, Kolkata.
9. Banerjee, D.K. (1992) Mineral resources of India. The World Press Pvt. Ltd., Kolkata.
10. Sharma, N.L. and Ram, K.S.V. (1964) Introduction to India's Economic minerals, Dhanbad Publishers.
11. Dobrin, M.B. (1952) Introduction to Geophysical Prospecting. McGraw Hill.
12. Park, C. F. and MacDiamid, R.A Ore Deposits. Freeman and company, Saint Francisco.
13. Sinha and Sharma . Mineral Economics.
14. Krishnaswamy, S. (1979) India's Mineral Resources. Oxford IBH, Pub. Co. New Delhi.
15. Prasad Umeshwar. Economic deposits of India. CBS Publishers, New Delhi.

SEMESTER – VI

6S : GEOLOGY

HYDROGEOLOGY, REMOTE SENSING, ENGINEERING GEOLOGY AND GEOLOGICAL SKILL

UNIT I : Concept of hydrology, hydrogeology and ground water, Hydrologic cycle and its components, Occurrence and distribution of ground water, Water Table, Aquifer and its types – confined, unconfined and semi-confined, Properties of aquifer- porosity, permeability, specific yield, safe yields, storage coefficient, storativity and transmissivity.

UNIT II : Recharge and discharge, Cone of depression, Influent and affluent seepages, Springs and its types. Ground water Provinces of India. Geophysical investigations for groundwater exploration, Groundwater and water quality services, Hydrochemical parameters of ground water (Acidity, Alkalinity, Hardness, pH, Conductivity) Recharge through wells and its types. Rain water harvesting,

UNIT III : Aerial photographs and its types, Satellite imageries. Methods of studying aerial photographs in the form of stereo-pairs and mossaic. Pocket and mirror stereoscopes, Overlap and sidelap, Drift and crab. Photogeology and elements of photorecognition- tone, texture, shape, size, pattern; Scale of photograph and vertical exaggeration. Guidelines for lithological, structural and geomorphic interpretations. Applications of photogeology. "Introduction and scope of photogeology".

UNIT IV : Concept of remote sensing, types of remote sensing systems (active and passive), Elements of passive remote sensing system (data acquisition and data analysis); applications of remote sensing in studying the natural resources like minerals, ground water, soil and forests. Satellites and Satellite data - introduction and brief history, types of satellites, information obtained with reference to latest IRS & LANDSAT satellites. Sensors – types and their applications.

UNIT V : Engineering Geology – introduction, scope and significance, engineering properties of rocks - specific gravity, porosity, crushing strength, compressive strength, and tensile strength. Tunnels - terminology, geological conditions for tunnel sites, tunnels in folded rocks and bedded rocks. Dams – terminology, geological conditions for the selection of dam, Types of dams - Masonary dams (Gravity buttress and Arch types), earthen dams. Landslides - causes, types and prevention of landslides.

UNIT VI : Geological skill development - Role of geological expertise in local natural resources investigation, exploration and mining, beneficiation of minerals; Rocks and minerals thin section making, Civil engineering services, Environmental services, . Soil quality testing and conservation services, Laboratory and Research Technician. Geoheritage.

PRACTICALS: SEMESTER – VI

1. Plotting of ground water provinces on outline map of India.
2. Problems on determination of aquifer parameters, ground water table maps.
3. Interpretation of aerial photographs and satellite imageries.
4. Field work : Field work is an Integral part of Geology Syllabus. Every student should attend field work for a short duration and submit field diary, geological specimen collected and a report.

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Cloning vectors:- Plasmids, bacteriophages, cosmids and phagemids.
Southern blotting and colony hybridization.
PCR.
Gene library.

Unit-IV : **Microbial Biotechnology I- Medicine:**
Interferon.
Insulin.
Recombinant vaccines.
Dextran.
Amino acids.
Pharmaceutically important recombinant products – (Growth harmone, erythropoietin)

Unit-V : **Microbial Biotechnology II- Industry:**
Batch and continuous fermentation.
Types of bioreactors(CSTR, Fluidized bed reactor, UASB).
Alcohol fermentation.
Penicillin fermentation.
Gluconic acid fermentation.
Citric acid fermentation.
Amylase fermentation.

Unit-VI : **Microbial Biotechnology III- Environment:**
Energy from Biomass (Biogas and Biodiesel)
Microbial Pesticides and Biofertilizers.
Microbial Bioremediation.
Bioleaching.
Biodegradation of xenobiotic compounds.
Water Treatment – Aerobic and Anaerobic

Co-ordinator
DEPTT. OF BIO-TECHNOLOGY
Shri Shivaji College of Arts, Commerce & Science
AKOLA

Practicals.

1) Agarose gel electrophoresis of nucleic acid.
2) Isolation of Genomic DNA.
3) To check purity of DNA
4) Plasmid isolation – Mini preparation.
5) DNA ligation
6) Competant cell preparation
7) Transformation.
8) Restriction enzyme and restriction digestion of plasmid DNA.

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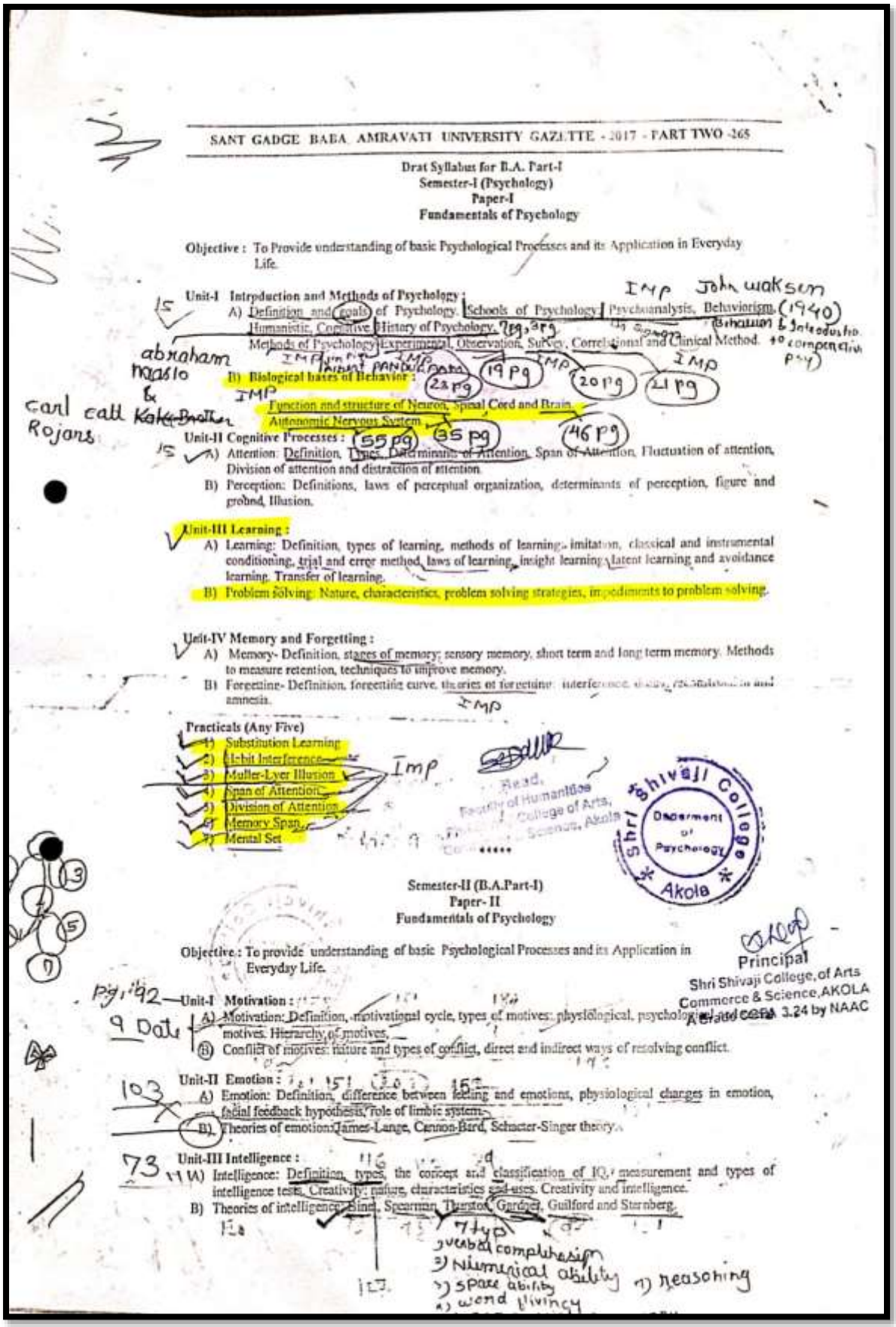

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2017 - PART TWO 265

Drat Syllabus for B.A. Part-I
Semester-I (Psychology)
Paper-I
Fundamentals of Psychology

Objective : To Provide understanding of basic Psychological Processes and its Application in Everyday Life.

Unit-I Introduction and Methods of Psychology :
A) Definition and Goals of Psychology, Schools of Psychology: Psychoanalysis, Behaviorism, Humanistic, Cognitive, History of Psychology, Methods of Psychology: Experimental, Observation, Survey, Correlational and Clinical Method.
B) Biological bases of Behavior :
Function and structure of Neuron, Spinal Cord and Brain.
Autonomic Nervous System.

Unit-II Cognitive Processes :
A) Attention: Definition, Types, Determinants of Attention, Span of Attention, Fluctuation of attention, Division of attention and distraction of attention.
B) Perception: Definitions, laws of perceptual organization, determinants of perception, figure and grobnd, Illusion.

Unit-III Learning :
A) Learning: Definition, types of learning, methods of learning, imitation, classical and instrumental conditioning, trial and error method, laws of learning, insight learning, latent learning and avoidance learning. Transfer of learning.
B) Problem Solving: Nature, characteristics, problem solving strategies, impediments to problem solving.

Unit-IV Memory and Forgetting :
A) Memory- Definition, stages of memory; sensory memory, short term and long term memory. Methods to measure retention, techniques to improve memory.
B) Forgetting- Definition, forgetting curve, theories of forgetting: interference theory, repression and amnesia.

Practicals (Any Five)
1) Substitution Learning
2) Bi-bit Interference
3) Muller-Lyer Illusion
4) Span of Attention
5) Division of Attention
6) Memory Span
7) Mental Set

Semester-II (B.A.Part-I)
Paper- II
Fundamentals of Psychology

Objective : To provide understanding of basic Psychological Processes and its Application in Everyday Life.

Unit-I Motivation :
A) Motivation: Definition, motivational cycle, types of motives: physiological, psychological and social motives. Hierarchy of motives.
B) Conflict of motives: nature and types of conflict, direct and indirect ways of resolving conflict.

Unit-II Emotion :
A) Emotion: Definition, difference between feeling and emotions, physiological changes in emotion, facial feedback hypothesis, role of limbic system.
B) Theories of emotion: James-Lange, Cannon-Bard, Schacter-Singer theory.

Unit-III Intelligence :
A) Intelligence: Definition, types, the concept and classification of IQ, measurement and types of intelligence tests. Creativity: nature, characteristics and uses. Creativity and Intelligence.
B) Theories of intelligence: Binet, Spearman, Thurston, Gardner, Guilford and Sternberg.

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D) Communication Skills : UNIT IV (16 Marks)
i) Interpersonal Conversation = 8 Marks
ii) Casual Conversation = 08 Marks

E) Multiple Choice Questions (MCQ) UNIT V (16 Marks)
Based on Unit I & II : The students will have to answer SIXTEEN out of SIXTEEN MCQ's = 16 Marks
F) Internal Assessment
i) Viva- Voce = 20 Marks
a) Personal Interview = 10Marks
b) Seminar - Presentation = 10 Marks
Note:
1. The teachers are expected to impart formal training in Grammar Composition, Making Introduction, Greeting People, Talking about Family, Describing People, Places & Animals, Expressing Feelings, Inviting, Suggesting, Accepting & Refusing, Reading & Oral Skills in the tutorial classes.
2. Internal examiner shall interview an examinee to test his or her spoken skills.
3. There shall be separate passing for theory & Internal Assessment.

*****

SYLLABUS
PRESCRIBED FOR
B.A PART II EXAMINATION
SEMESTER III
ENGLISH LITERATURE
UNIT I

Text Prescribed : A Background to the study of English Literature by B.Prasad.
Chapters Prescribed :
Chapter II - The Novel
Chapter III - The Short Story
Chapter IV - Biography and Autobiography

UNIT II

Prescribed Textbook : Unheard Melodies by Board of Editors, Published by Orient Blackswan
POETRY :

The following poems are prescribed
1. Palanquin Bearers - Sarojini Naidu
2. Between These Lines - S Joseph
3. The Epileptic - Keki N Daruwalla
4. A Walk by Moonlight - Henry Derozio
5. Endless Time - Rabindranath Tagore

UNIT III

Prescribed Textbook : Unheard Melodies by Board of Editors, Published by Orient Blackswan

A)Introduction to Literary Terms - I
Following Literary Terms are prescribed
1. Point of View
2. Anticlimax
3. Climax
4. Binary Opposition
5. Euphemism
6. Subaltern
7. Oxymoron
8. Picaresque Narrative
9. Epistolary Novel
10. Bildungsroman
11. Ekphrastic Poem
12. Stream of Consciousness Narrative
13. Metafiction
14. Objective Correlative
15. Platonic Love
16. Anti-Hero

B)Introduction to Literary Theories - I
Following Literary Theories are prescribed
1. Archetypal Criticism
2. Russian Formalism
3. Structuralism
4. Narratology

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tion-Parts of Speech, Use of articles and Prepositions, Tenses, Transformation of Sentences ....05 marks

Q. 5 : There shall be one question either on Note-making or on Reporting (Note: The paper setter shall have the discretion)..... 05 marks

Q. 6 : There shall be one question on Paragraph Writing on topics of current relevence. Students will have to write a paragraph of about 200 words out of four given topics .....05 marks

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Total 40 marks

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२. मराठी अनिवार्य

विज्ञान स्नातक भाग-१, सत्र-१ व सत्र-२

अभ्यासक्रमासाठी सूक्ष्म वाचनाकरिता पाठ्यपुस्तक "**शलाका**" ओरिएन्ट ब्लॅकस्वॉन प्रा.लि.मुंबई ४००००१ यांनी प्रकाशित केले आहे.

उपरोक्त "शलाका" पाठ्यपुस्तक विज्ञान शाखा भाषा अभ्यास मंडळाने संपादित केलेले असेल व त्यात खालील घटकांचा व पाठ्यांशांचा समावेश राहील.

सत्र-१

घटक अ (गद्य)

१)	पुरुष सूक्त	-	लक्ष्मण लोंढे
२)	विज्ञान कथेतील सत्य आणि कथित	-	चंद्रकांत पाटील
३)	येशूची लोकशिक्षणाची शैली	-	फ्रान्सीस दिब्रिटो
४)	लोकभ्रम	-	विष्णूशास्त्री चिपळूणकर
५)	महात्मा ज्योतिराव फुले	-	भा.ल.भोळे
६)	गाडगे बाबांचे अखेरचे किर्तन	-	गाडगे बाबा

घटक ब (पद्य)

१)	पसायदान	-	ज्ञानेश्वर
२)	डोईचा पदर	-	जनाबाई
३)	टिळा टोपी उंच दावी	-	तुकाराम
४)	जैसा वृक्ष नेणे	-	नामदेव

घटक क (व्यावहारिक मराठी)

कार्यालयीन पत्रव्यवहार -

सत्र-२

घटक अ (गद्य)

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१)	स्टीफन हॉकिंग	-	निवास पाटील
२)	मला शब्द द्या	-	वि.वा.शिरवाडकर
३)	आंबेडकरांचे ग्रंथप्रेम	-	शां.शं.रेगे
४)	विज्ञान, तंत्रज्ञान आणि मराठी भाषा	-	जयंत नारळीकर
५)	चिंतन	-	ए.पी.जे.अब्दूल कलाम
६)	जगायचं कशासाठी	-	डॉ.निर्मलकुमार फडकुले

घटक ब (पद्य)

१)	विद्यार्थ्याप्रत	-	केशवसूत
२)	लपे कर्माची रेखा	-	बहिणाबाई चौधरी
३)	मेंढर	-	विठ्ठल वाघ
४)	संग्राम	-	यशवंत मनोहर

घटक क (व्यावहारिक मराठी)

प्रसारमाध्यमांसाठी लेखन

मराठी अनिवार्य

विज्ञान स्नातक भाग-१, सत्र-१ व सत्र-२

वेळ ३ तास **सत्र-१** **गुण - ४०**

या विषयाची एक प्रश्नपत्रिका राहील.

सूक्ष्म वाचनाकरिता पाठ्यपुस्तक - **"शलाका"**

या पाठ्यपुस्तकातील घटक अ (पाठ क्र.१ ते ६) व घटक ब (कविता क्र.१ ते ४) व घटक क (व्यावहारिक मराठी) यावर प्रश्न व गुणविभागणी खालील प्रमाणे राहील.

प्रश्न-१ घटक अ	-	दिर्घोत्तरी प्रश्न (कोणताही एक)	गुण - १०
प्रश्न-२ घटक अ	-	लघुत्तरी प्रश्न (कोणतेही दोन)	गुण - (५अ५उ१०)
प्रश्न-३ घटक ब	-	लघुत्तरी प्रश्न (कोणतेही दोन)	गुण - (५अ५उ१०)
प्रश्न-४ घटक क	-	व्यावहारिक मराठी- कार्यालयीन पत्रव्यवहार	गुण - (५अ५उ१०)

पाच गुणांचे दोन प्रश्न राहील.

विज्ञान स्नातक भाग-१, सत्र-१ व सत्र-२

वेळ ३ तास **सत्र-२** **गुण - ४०**

या विषयाची एक प्रश्नपत्रिका राहील.

सूक्ष्म वाचनाकरिता पाठ्यपुस्तक - **"शलाका"**

या पाठ्यपुस्तकातील घटक अ (पाठ क्र.७ ते १२) व घटक ब (कविता क्र.५ ते ८) व घटक क (व्यावहारिक मराठी) यावर प्रश्न व गुणविभागणी खालील प्रमाणे राहील.

प्रश्न-१	घटक अ	- दिर्घोत्तरी प्रश्न (कोणताही एक)	गुण - १०
प्रश्न-२	घटक अ	- लघुत्तरी प्रश्न (कोणतेही दोन)	गुण - (५अ५उ१०)
प्रश्न-३	घटक ब	- लघुत्तरी प्रश्न (कोणतेही दोन)	गुण - (५अ५उ१०)

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Appendix-B

वाङ्मय पार्वंगत (मराठी) / एम. ए. (मराठी)
अभ्यासक्रम २०१७-२०१८
एम. ए. (मराठी) : सत्र पहिले

आवश्यक पत्रिका	पत्रिका १ :	मराठी वाङ्मयाची सांस्कृतिक पार्श्वभूमी (आरंभ ते १८१८)
आवश्यक पत्रिका	पत्रिका २ :	साहित्यविचार
ऐच्छिक पत्रिका	पत्रिका ३ :	अ) साहित्यकृतींचा अभ्यास किंवा ब) संतसाहित्य किंवा क) लोकसाहित्य.
ऐच्छिक पत्रिका	पत्रिका ४ :	अ) विशेष वाङ्मयप्रकार कादंबरी किंवा ब) विशेष वाङ्मयप्रकार कथा किंवा क) विशेष वाङ्मयप्रकार ललित गद्य

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एम. ए. (मराठी) : सत्र दुसरे

आवश्यक पत्रिका	पत्रिका १ :	मराठी वाङ्मयाची सांस्कृतिक पार्श्वभूमी (१८१८ ते १९६०)
आवश्यक पत्रिका	पत्रिका २ :	समीक्षाविचार
ऐच्छिक पत्रिका	पत्रिका ३ :	अ) साहित्यकृतींचा अभ्यास किंवा ब) महानुभाव साहित्य किंवा क) लोकसाहित्य
ऐच्छिक पत्रिका	पत्रिका ४ :	अ) विशेष वाङ्मयप्रकार कादंबरी किंवा ब) विशेष वाङ्मयप्रकार नाटक किंवा क) विशेष वाङ्मयप्रकार चरित्र-आत्मचरित्र-आत्मकथन

* * * * *

एम. ए. (मराठी) भाग १ : सत्र पहिले

आवश्यक पत्रिका पत्रिका १ : मराठी वाङ्मयाची सांस्कृतिक पार्श्वभूमी (आरंभ ते १८१८)

घटक :

१. साहित्य आणि समाज : अन्योन्यसंबंध
२. यादवकालीन सामाजिक, सांस्कृतिक, धार्मिक व राजकीय स्थितीच्या पार्श्वभूमीवर महानुभाव संप्रदायाचा उदय, विकास व तत्त्वज्ञान. महानुभाव संप्रदाय दंदिरत होण्याची कारणे.
३. वारकरी संप्रदायाच्या उदयकालाची महाराष्ट्रातील सामाजिक, धार्मिक आणि सांस्कृतिक स्थिती. वारकरी संप्रदायाच्या उदयाची कारणे आणि नामदेवांची मांदियाळी व त्यांचे सामाजिक कार्य. त्याला पूरक साहित्यनिर्मिती.
४. ज्ञानाचा एका : नाथकालीन समाज आणि संत एकनाथांची साहित्यनिर्मिती.
५. शिवकाल : संत तुकाराम आणि संत रामदास यांचे कार्य
६. शिवकाल व पेशवेकालीन सामाजिक व राजकीय स्थिती शाहिरी वाङ्मयाची प्रेरणा व स्वरूप.
७. उत्तर पेशवाई : लावणी वाङ्मयाचा आस्वाद

संदर्भग्रंथ :

१) मराठी संतांचे सामाजिक कार्य, डॉ. निर्मल मिरजकर कोलते (अनुवाद सुमती रमाकांत कोलते), लोकवाङ्मय गृह, मुंबई, २०१०.
२) संत वाङ्मयाची सामाजिक फलश्रुती, गं. बा. सरदार
३) महाराष्ट्रीय सन्त मंडळाचे ऐतिहासिक कार्य, अजित एजन्सी

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१) गृहपाठ – १० गुण
२) मौखिक परीक्षा – १० गुण

लेखी परीक्षा व अंतर्गत मूल्यमापन या दोन्ही परीक्षांमध्ये स्वतंत्रपणे उत्तीर्ण होणे आवश्यक राहील. त्यासाठी किमान गुण खालीलप्रमाणे आवश्यक असतील.

- लेखी परीक्षा – ८० पैकी ३२ गुण आवश्यक
- अंतर्गत मूल्यमापन – २० पैकी ०८ गुण आवश्यक

सूचना : १) गृहपाठ हा पाठ्यपुस्तकांव्यतिरिक्त अन्य पोषणत्याही साहित्यिक, सामाजिक, सांस्कृतिक, समाज वास्तव या समस्यांवर आधारित असावा. यामध्ये परिसरातील साहित्यिकांची मुलाखत घेऊन त्यांचे शब्दांकन करणे, परिसरातील लोककलांची माहिती व विशेष नोंदवणे, परिसरातील म्हणी-वाक्प्रचार यांचे संकलन करुन विशेष नोंदवणे, लोकगीते, लोककथा यांचे संकलन करणे, ग्रामीण साहित्य, दलित साहित्य, स्त्रीवादी साहित्य इ. वर टिपण तयार करणे, परिसरातील वाङ्मयीन चळवळी, परिसराचा सांस्कृतिक वारसा यावर टिपण तयार करणे, परिसराच्या भाषेचे विशेष नोंदवणे, वाङ्मयीन व्यक्तिमत्त्वांचे चित्रण करणे, सांस्कृतिक कार्यक्रमांचे वृत्तांकन करणे, हस्तलिखिताचे मुद्रितशोधन करणे, लोकसंस्कृतीची माहिती नोंदवणे इ. बाबींचा समावेश असेल.

२) गृहपाठावर आधारित मौखिक परीक्षा घेण्यात यावी.

संत गाडगे बाबा अमरावती विद्यापीठ, अमरावती

बी.ए.भाग-१ मराठी वाङ्मय
सत्र २ रे

।। गुण विभागणी ।।

एकूण गुण – १००
लेखी गुण – ८०
अंतर्गत मूल्यमापन – २०
वेळ – ३ तास

अभ्यासक्रमासाठी नेमलेले ग्रंथ -

१) नाटक - आई रिटायर होतेय लेखक अशोक पाटोळे, पॉप्युलर प्रकाशन, मुंबई
२) कविता - अर्वाचीन मराठी कविता (संपादित) या ग्रंथातील क्रमांक आठ ते चौदा हे कवी दुसऱ्या सत्रासाठी असतील.

अ) नाटक - आई रिटायर होतेय ४८ गुण
ब) कविता - अर्वाचीन मराठी कविता (संपादित) ३२ गुण
८० गुण

प्रश्ननिहाय गुण विभागणी

प्रश्न – १ संदर्भासह स्पष्टीकरण - १६ गुण
- नाटकावर प्रत्येकी चार गुणांचे दोन संदर्भ विचारले जातील.
- अर्वाचीन मराठी कवितावर प्रत्येकी चार गुणांचे दोन संदर्भ विचारले जातील.

प्रश्न – २ 'आई रिटायर होतेय' या नाटकावर एक दीर्घोत्तरी प्रश्न विचारला जाईल. - १६ गुण
प्रश्न – ३ 'आई रिटायर होतेय' या नाटकावर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न विचारले जातील. - १६ गुण
प्रश्न – ४ अर्वाचीन मराठी कवितावर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न विचारले जातील. - १६ गुण
प्रश्न – ५ वस्तुनिष्ठ बहुपर्यायी प्रश्न - १६ गुण
(उपरोक्त नाटक व कविता यावर आधारित प्रत्येकी एक गुण असे १६ वस्तुनिष्ठ बहुपर्यायी प्रश्न असतील.)

अंतर्गत मूल्यमापन :
एकूण २० गुणांची अंतर्गत मूल्यमापन परीक्षा राहील त्याची गुण विभागणी खालीलप्रमाणे

१) गृहपाठ – १० गुण
२) मौखिक परीक्षा – १० गुण

लेखी परीक्षा व अंतर्गत मूल्यमापन या दोन्ही परीक्षांमध्ये स्वतंत्रपणे उत्तीर्ण होणे आवश्यक राहील. त्यासाठी किमान गुण खालीलप्रमाणे आवश्यक असतील.

- लेखी परीक्षा – ८० पैकी ३२ गुण आवश्यक
- अंतर्गत मूल्यमापन – २० पैकी ०८ गुण आवश्यक

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बी.ए.भाग-२ मराठी वाङ्मय
सत्र ४ थे

|| गुण विभागणी ||

एकूण गुण – १००
लेखी गुण – ८०
अंतर्गत मूल्यमापन – २०
वेळ - ३ तास

अभ्यासक्रमासाठी नेमलेले ग्रंथ -
१) आत्मकथन -आठवणीचे पक्षी - लेखक प्र.ई.सोनकांबळे, चेतना प्रकाशन.
२) लीळाचरित्रातील निवडक कथा - संपादक - राजेंद्र राऊत

अ) आत्मकथन - आठवणीचे पक्षी ४८ गुण
ब) लीळाचरित्रातील निवडक कथा ३२ गुण
८० गुण

प्रश्ननिहाय गुण विभागणी

प्रश्न – १ संदर्भासह स्पष्टीकरण - १६ गुण
- आठवणींचे पक्षी यावर प्रत्येकी चार गुणांचे दोन संदर्भ विचारले जातील.
- लीळाचरित्रातील निवडक कथा यावर प्रत्येकी चार गुणांचे दोन संदर्भ विचारले जातील.

प्रश्न – २ आठवणींचे पक्षी यावर एक दीर्घोत्तरी प्रश्न विचारला जाईल. - १६ गुण
प्रश्न – ३ आठवणींचे पक्षी यावर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न विचारले जातील. - १६ गुण
प्रश्न – ४ लीळाचरित्रातील निवडक कथा यावर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न विचारले जातील. - १६ गुण
प्रश्न – ५ वस्तुनिष्ठ बहुपर्यायी प्रश्न - १६ गुण
(उपरोक्त आठवणींचे पक्षी व लीळाचरित्रातील निवडक कथा यावर आधारित प्रत्येकी एक गुण असे १६ वस्तुनिष्ठ बहुपर्यायी प्रश्न असतील.)

अंतर्गत मूल्यमापन :
एकूण २० गुणांची अंतर्गत मूल्यमापन परीक्षा राहील त्याची गुण विभागणी खालीलप्रमाणे
१) गृहपाठ – १० गुण
२) मौखिक परीक्षा – १० गुण

लेखी परीक्षा व अंतर्गत मूल्यमापन या दोन्ही परीक्षांमध्ये स्वतंत्रपणे उत्तीर्ण होणे आवश्यक राहील. त्यासाठी किमान गुण खालीलप्रमाणे आवश्यक असतील.
- लेखी परीक्षा – ८० पैकी ३२ गुण आवश्यक
- अंतर्गत मूल्यमापन – २० पैकी ०८ गुण आवश्यक

सूचना : १) गृहपाठ हा पाठ्यपुस्तकांव्यतिरिक्त अन्य कोणत्याही साहित्यिक, सामाजिक, सांस्कृतिक, समाज वास्तव वा समस्यांवर आधारित असावा. यामध्ये परिसरातील साहित्यिकांची मुलाखत घेऊन त्याचे शब्दांकन करणे, परिसरातील लोककलांची माहिती व विशेष नोंदवणे, परिसरातील म्हणी-वाक्प्रचार यांचे संकलन करुन विशेष नोंदवणे, लोकगीते, लोककथा यांचे संकलन करणे, ग्रामीण साहित्य, दलित साहित्य, स्त्रीवादी साहित्य इ. वर टिपण तयार करणे, परिसरातील वाङ्मयीन चळवळी, परिसराचा सांस्कृतिक वारसा यावर टिपण तयार करणे, परिसराच्या भाषेचे विशेष नोंदवणे, वाङ्मयीन व्यक्तिमत्त्वांचे चित्रण करणे, सांस्कृतिक कार्यक्रमांचे वृत्तांकन करणे, हस्तलिखिताचे मुद्रितशोधन करणे, लोकसांस्कृतीची माहिती नोंदवणे इ. बाबींचा समावेश असेल.
२) गृहपाठावर आधारित मौखिक परीक्षा घेण्यात यावी.

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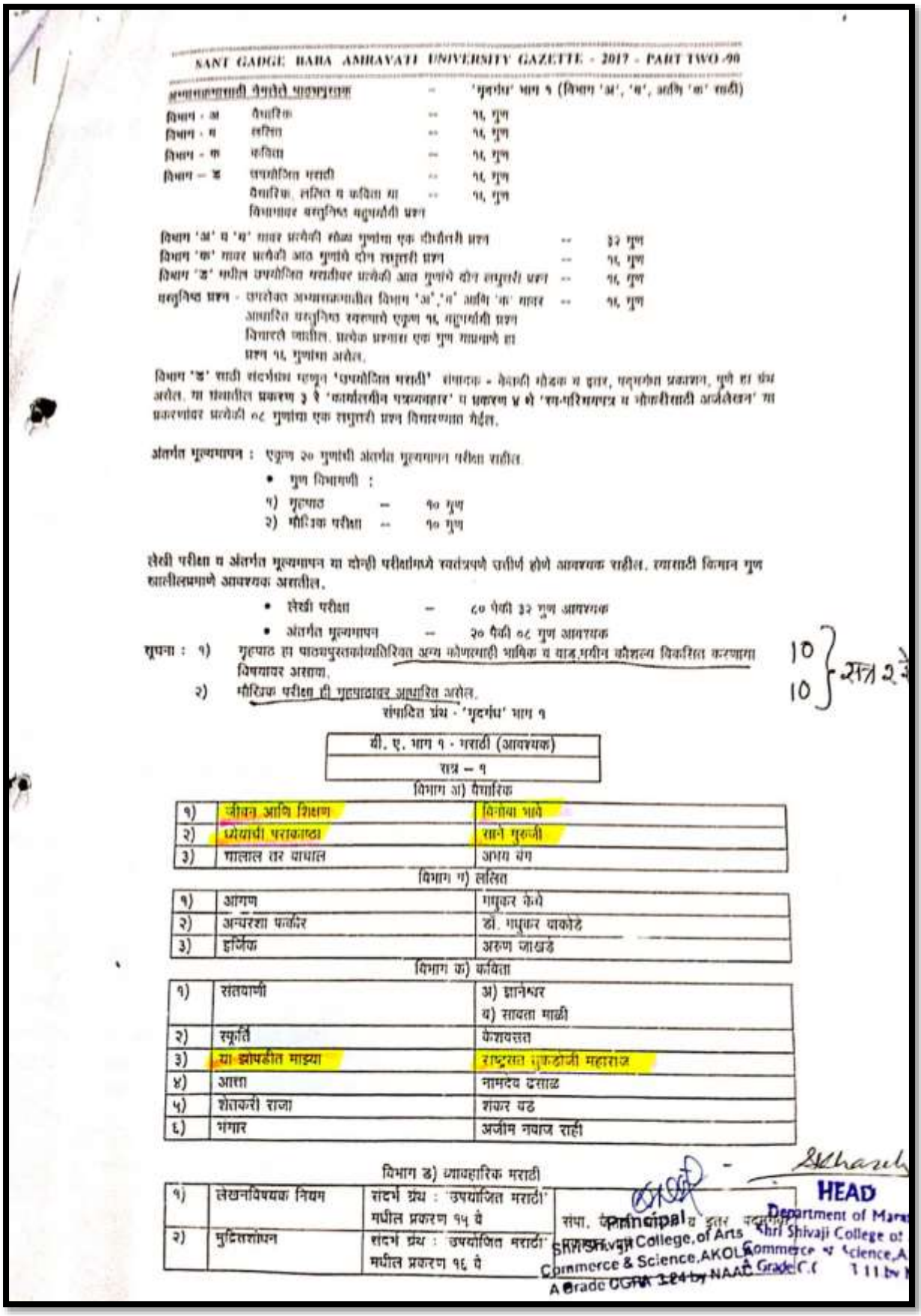

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अभ्यासक्रमासाठी पेपरचे गुणप्रदानक – 'मृदगंध' भाग १ (विभाग 'अ', 'ब', आणि 'क' साठी)

विभाग - अ	वैचारिक	--	१५ गुण
विभाग - ब	ललित	--	१५ गुण
विभाग - क	कविता	--	१५ गुण
विभाग – ड	उपयोजित मराठी	--	१५ गुण
	वैचारिक, ललित व कविता या विभागावर वस्तुनिष्ठ बहुपर्यायी प्रश्न	--	१५ गुण

विभाग 'अ' व 'ब' साठी प्रत्येकी सोळा गुणांचा एक दीर्घोत्तरी प्रश्न -- ३२ गुण
विभाग 'क' साठी प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न -- १५ गुण
विभाग 'ड' मधील उपयोजित मराठीवर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न -- १५ गुण
वस्तुनिष्ठ प्रश्न - वरीलपैकी अभ्यासक्रमातील विभाग 'अ','ब' आणि 'क' साठी -- १५ गुण
आधारित वस्तुनिष्ठ स्वरूपाचे एकूण १५ बहुपर्यायी प्रश्न
विचारले जातील. प्रत्येक प्रश्नास एक गुण याप्रमाणे हा
प्रश्न १५ गुणांचा असेल.

विभाग 'ड' साठी संदर्भासाठी पाठ्यपुस्तक 'उपयोजित मराठी' संपादक - केवळकी गोडबोले व इतर, पद्मगंधा प्रकाशन, पुणे हा ग्रंथ असेल. या ग्रंथातील प्रकरण ३ ते 'कार्यालयीन पत्रव्यवहार' व प्रकरण ४ ते 'स्व-परिचयपत्र व नोकरीसाठी अर्जलेखन' या प्रकरणांवर प्रत्येकी ०८ गुणांचा एक लघुत्तरी प्रश्न विचारण्यात येईल.

अंतर्गत मूल्यमापन : एकूण २० गुणांची अंतर्गत मूल्यमापन परीक्षा राहील.

- गुण विभागणी :

१) गृहपाठ -- १० गुण
२) मौखिक परीक्षा -- १० गुण

लेखी परीक्षा व अंतर्गत मूल्यमापन या दोन्ही परीक्षांमध्ये स्वतंत्रपणे उत्तीर्ण होणे आवश्यक राहील. त्यासाठी किमान गुण खालीलप्रमाणे आवश्यक असतील.

- लेखी परीक्षा – ८० पैकी ३२ गुण आवश्यक
- अंतर्गत मूल्यमापन – २० पैकी ०८ गुण आवश्यक

सूचना : १) गृहपाठ हा पाठ्यपुस्तकांव्यतिरिक्त अन्य कोणत्याही भाषिक व वाङ्मयीन कौशल्य विकसित करणाऱ्या विषयावर असावा. 10 } सत्र २
२) मौखिक परीक्षा ही गृहपाठावर आधारित असेल. 10

संपादित ग्रंथ - 'मृदगंध' भाग १

बी. ए. भाग १ - मराठी (आवश्यक)

सत्र – १

विभाग अ) वैचारिक

१)	जीवन आणि शिक्षण	तिसरा भाग
२)	ध्येयाची पराकाष्ठा	साने गुरुजी
३)	चालते तर बोलते	अभय बंग

विभाग ब) ललित

१)	आगपेन	गंगाधर गेडगे
२)	अन्वरशा फर्कंदर	डॉ. गंगाधर पानकोटे
३)	इर्जिक	अरुण जाखडे

विभाग क) कविता

१)	संतवाणी	अ) ज्ञानेश्वर ब) सावता माळी
२)	स्फूर्ती	केशवसुत
३)	या झोपडीत माझ्या	राष्ट्रसंत तुकडोजी महाराज
४)	आस्ता	नामदेव ढसाळ
५)	शेतकरी राजा	शंकर बढे
६)	भंगार	अजीम नवाज राही

विभाग ड) व्यावहारिक मराठी

१)	लेखनविषयक नियम	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण १५ वे	संपा. केवळकी गोडबोले व इतर, पद्मगंधा प्रकाशन, पुणे
२)	मुद्रितशोधन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण १६ वे	

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बी. ए. भाग १ मराठी (आवश्यक)
सत्र २

विभाग अ) वैचारिक

१)	तरुणांनो ! निर्भय बना, शूर बना	स्वामी विवेकानंद
२)	वैज्ञानिक दृष्टिकोन	नरेंद्र दाभोलकर
३)	स्त्री शुद्रांचा राजा छत्रपती शिवराय	चंद्रशेखर शिखरे

विभाग ब) ललित

१)	हत्तीचा दृष्टांत	फशिराज मारा
२)	अल्पभूधारक	बाबाराव मुसळे
३)	बस्तावेणा	मीनल गवते

विभाग क) कविता

१)	संतवाणी	अ) नामदेव ब) जनाबाई
२)	तयास मानव म्हणावे का?	सावित्रीबाई फुले
३)	चाफा	बी
४)	गेले तुटून पंख	शिवा राऊत
५)	योद्धा	महेश्वरा अमर शेख
६)	गाय	रा.ग.पायघोळ

विभाग ड) व्यावहारिक मराठी

१)	कार्यालयीन पत्रव्यवहार	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण ३ रे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	स्व-परिचयपत्र व नोकरीसाठी अर्जलेखन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण ४ रे	

बी.ए.भाग-१ मराठी वाङ्मय
सत्र १ ले

।। गुण विभागणी ।।

एकूण गुण – १००
लेखी गुण – ८०
अंतर्गत मूल्यमापन – २०
वेळ - ३ तास

<u>अभ्यासक्रमासाठी नेमलेले ग्रंथ -</u>

१) कादंबरी – तहान- लेखक सदानंद देशमुख, कॉन्टिनेन्टल प्रकाशन, पुणे
२) अर्वाचीन मराठी कविता (संपादित) या ग्रंथातील क्रमांक एक ते सात हे कवी पहिल्या सत्रासाठी असतील.

अ) कादंबरी – तहान ४८ गुण
ब) कविता - अर्वाचीन मराठी कविता (संपादित) ३२ गुण
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८० गुण

प्रश्ननिहाय गुण विभागणी

प्रश्न – १ संदर्भासह स्पष्टीकरण - १६ गुण

- कादंबरीवर प्रत्येकी चार गुणांचे दोन संदर्भ विचारले जातील.
- अर्वाचीन मराठी कवितावर प्रत्येकी चार गुणांचे दोन संदर्भ विचारले जातील.

प्रश्न – २ तहान कादंबरीवर एक दीर्घोत्तरी प्रश्न विचारला जाईल. - १६ गुण

प्रश्न – ३ तहान या कादंबरीवर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न विचारले जातील. - १६ गुण

प्रश्न – ४ अर्वाचीन मराठी कवितावर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न विचारले जातील. - १६ गुण

प्रश्न – ५ वस्तुनिष्ठ बहुपर्यायी प्रश्न - १६ गुण

(उपरोक्त कादंबरी व कविता यावर आधारित प्रत्येकी एक गुण असे १६ वस्तुनिष्ठ बहुपर्यायी प्रश्न असतील)

अंतर्गत मूल्यमापन :

एकूण २० गुणांची अंतर्गत मूल्यमापन परीक्षा राहील त्याची गुण विभागणी खालीलप्रमाणे

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बी. ए. भाग – २ मराठी (आवश्यक)
सत्र ४ थे

।। गुण विभागणी ।।

एकूण गुण – १००
लेखी गुण – ८०
अंतर्गत मूल्यमापन – २०
वेळ - ३ तास

अभ्यासक्रमासाठी नेमलेले पाठ्यपुस्तक – 'मृदगंध' भाग २ (विभाग 'अ', 'ब', आणि 'क' साठी)

विभाग - अ	वैचारिक	–	१६ गुण
विभाग - ब	ललित	–	१६ गुण
विभाग - क	कविता	–	१६ गुण
विभाग – ड	उपयोजित मराठी	–	१६ गुण
	वैचारिक, ललित व कविता या विभागांवर वस्तुनिष्ठ बहुपर्यायी प्रश्न	–	१६ गुण

विभाग 'अ' व 'ब' यावर प्रत्येकी सोळा गुणांचा एक दीर्घोत्तरी प्रश्न – ३२ गुण
विभाग 'क' यावर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न – १६ गुण
विभाग 'ड' मधील उपयोजित मराठीवर प्रत्येकी आठ गुणांचे दोन लघुत्तरी प्रश्न – १६ गुण
वस्तुनिष्ठ प्रश्न - उपरोक्त अभ्यासक्रमातील विभाग 'अ','ब' आणि 'क' यावर आधारित वस्तुनिष्ठ स्वरुपाचे एकूण १६ बहुपर्यायी प्रश्न विचारले जातील. प्रत्येक प्रश्नास एक गुण याप्रमाणे हा प्रश्न १६ गुणांचा असेल. – १६ गुण

विभाग 'ड' साठी संदर्भग्रंथ म्हणून **'उपयोजित मराठी'** संपादक - केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे हा ग्रंथ असेल. या ग्रंथातील **प्रकरण ९ वे 'माहितीपत्रक'** व **प्रकरण १० वे 'निमंत्रणपत्रिका व कार्यक्रमपत्रिका'** या प्रकरणांवर प्रत्येकी ०८ गुणांचा एक लघुत्तरी प्रश्न विचारण्यात येईल.

अंतर्गत मूल्यमापन : एकूण २० गुणांची अंतर्गत मूल्यमापन परीक्षा राहील.

- गुण विभागणी :

१) गृहपाठ – १० गुण
२) मौखिक परीक्षा – १० गुण

लेखी परीक्षा व अंतर्गत मूल्यमापन या दोन्ही परीक्षांमध्ये स्वतंत्रपणे उत्तीर्ण होणे आवश्यक राहील. त्यासाठी किमान गुण खालीलप्रमाणे आवश्यक असतील.

- लेखी परीक्षा – ८० पैकी ३२ गुण आवश्यक
- अंतर्गत मूल्यमापन – २० पैकी ०८ गुण आवश्यक

सूचना : १) गृहपाठ हा पाठ्यपुस्तकांव्यतिरिक्त अन्य कोणत्याही भाषिक व वाङ्मयीन कौशल्य विकसित करणाया विषयावर असावा.
२) मौखिक परीक्षा ही गृहपाठावर आधारित असेल.

संपादित ग्रंथ - 'मृदगंध' भाग २

बी. ए. भाग २ मराठी (आवश्यक)
सत्र ३

विभाग अ) वैचारिक

१)	शुद्ध चारित्र्याचा प्रज्ञावंत राजकारणी	तर्कतीर्थ लक्ष्मणशास्त्री जोशी
२)	मीपण स्वत्वाच्या सीमेत दरवळत, तोपर्यंतच ते सुगंधी असत !	आ.ह.साळुंखे
३)	नाथाभिवृद्धीची सामाजिक दृष्टी	श्री.म.माटे

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विभाग ब) ललित

१)	आज्ञापत्र	रामचंद्रपंत अमात्य
२)	माझे दत्तक वडील	वि. वि. जोशी
३)	दिवस असे होते	दया पवार

विभाग क) कविता

१)	संतवाणी	अ) चोखामेळा ब) सोयराबाई
२)	अखेर कमाई	कुसुमाग्रज
३)	पाखरे	केशव मेश्राम
४)	जात	श्रीकांत देशमुख
५)	सात बाराची नोंद	लक्ष्मण महाडिक
६)	शांतता	सिद्धार्थ भगत

विभाग ड) व्यावहारिक मराठी

१)	वस्तूंच्या कला	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण २२ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	सूत्रसंचालन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण २३ वे	

बी. ए. भाग २ - मराठी (आवश्यक)

सत्र – ४

विभाग अ) वैचारिक

१)	स्त्री-पुरुष तुलना	ताराबाई शिंदे
२)	आरक्षण	डॉ. बाबासाहेब आंबेडकर
३)	विज्ञानयुगात भारत	जयंत नारळीकर

विभाग ब) ललित

१)	गाडगेबाबांच्या कीर्तनातले तत्त्वज्ञान	प्रबोधनकार के.सी. ठाकरे
२)	स्मशानातील सोनं	अण्णा भाऊ साठे
३)	स्त्रीवादी चळवळीने आम्हाला आमच्या अस्तित्वाची जाणीव दिली	विद्युत भागवत

विभाग क) कविता

१)	संतवाणी	अ) एकनाथ ब) कान्होपात्रा
२)	सारेच दीप कसे मंदावले आता	अनिल
३)	जिवलगा	शांता शेळके
४)	जागजागी	भ.ना. परसावळे
५)	पेटवू नका देश	मिझा रफी अहमद बेग
६)	माती	राजेश महल्ले

विभाग ड) व्यावहारिक मराठी

१)	माहितीपत्रक	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण ९ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	निमंत्रणपत्रिका व कार्यक्रमपत्रिका	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण १० वे	

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संपादित ग्रंथ - 'मृदगंध' भाग ३

बी. ए. भाग ३ मराठी (आवश्यक)
सत्र ५

विभाग अ) वैचारिक

१)	शेतकऱ्याचा असूड	म. फुले
२)	मंत्रबळ नव्हे यंत्रबळ	वि.दा. सावरकर
२)	बुध्दी : माणसाची खरी शक्ती	दादा धर्माधिकारी

विभाग ब) ललित

१)	लोकजीवनातील वृक्षपूजा	द.ता. भोसले
२)	पाणी	भास्कर चंदनशीव
३)	दहा पैशाचा तमाशा	मुकुंद टाकसाळे

विभाग क) कविता

१)	संतवाणी	अ) तुकाराम ब) रामदास
२)	औदुंबर	बालकवी
३)	गाव	ग्रेस
४)	जीवनाचा शोध घेताना	वाहरु सोनवणे
५)	खुणच पुसली मानवतेची	सुखदेव ढाणके
६)	दातासाठी हत्तीला मारण्याचे गणित	लोकनाथ यशवंत

विभाग ड) व्यावहारिक मराठी

१)	अहवाल लेखन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण १२ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	प्रसारमाध्यमांसाठी लेखन - वृत्तलेखन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण १७ वे मधील 'बातमी लिहावी कशी' हा घटक	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे

बी. ए. भाग ३ मराठी (आवश्यक)
सत्र ६

विभाग अ) वैचारिक

१)	डॉ. पंजाबराव	वि. भि. कोलते
२)	राजर्षी शाहू : वसा आणि वारसा	गोविंद पानसरे
३)	स्वराज्य संकल्पिका राष्ट्रमाता जिजाऊ	अशोक राणा

विभाग ब) ललित

१)	मरणाहून आपेश वोखटे	भाऊसाहेबांची बखर
२)	अरणी	मारुती चितमपल्ली
३)	ढग	सखा कलाल

विभाग क) कविता

१)	संतवाणी	अ) शेख महंमद ब) फादर स्टिफन्स
२)	पोरसवदा होतीस	बा.सी. मर्ढेकर
३)	विझता विझता स्वतःला	नारायण सुर्वे
४)	बैलाचा मृत्यू	वसंत आबाजी डहाके
५)	काय कराल?	नारायण कुळकर्णी कवठेकर
६)	शेतकरी	बबन सराडकर

विभाग ड) व्यावहारिक मराठी

१)	जाहीर निवेदन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण ६ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	जाहिरात लेखन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण ८ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे

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Commerce [illegible], AKOLA
A Grade [illegible] NAAC

Semester-II (Paper-III)
Public Administration

Marks : Theory – 80
In.Ass – 20

Unit-I Budgetting : The Machinery of Financial Administation, Principles of Budget Making, Importance of Budget in Administration.

Unit-II Administrative Accountability : Legislative and Judicial Control Over Administration, Control on Public Administration of Political Parties, Public Opinion and Pressure Groups – Their Impac on Policy Making.

Unit-III Personel Administration : Recruitment, Training, Promotion, Administrative Leadership.

Unit-IV Public Administration in the age of Globaliztion and Liberalization. Impact of Information Technology on Public Administration.

Unit-V Governance : Good Governance, Transparency and Accountability, Right to Information, Grievance Redressal Institution : Ombudsman, Lokpal and Lokayukta.

Distribution of Internal Marks

i) Seminar Submission	...	10 Marks
ii) Seminar Presentation	...	10 Marks

Reference Books :

1. Awasthi and S.R. Maheshwari, Public Administration, Agra, Lakshmi Narain Aggarwal, 1996.
2. C.P. Bhambri, Administrators in a Changing Society, Bureaucracy and Politics in India, Delhi. Vikas, 1971,
3. Gladen - An Introduction to Public Administration
4. Tyagi, A.R. - Public Administration
5. M.P. Sharma & B.C. Sadane - Public Administration in Theory and Practice
6. M. Bhattacharya, Public Administration : Structure, Process and Behaviour, Calcutta, the World Press, 1991.
7. M.E. Dimock, and G.O. Dimock, Public Administration, Oxford, I.B.H. Publishing Com., 1975.
8. प्रा. प.सि.काणे - लोक प्रशासन.
9. प्रा. भोगले - लोक प्रशासन.
10. प्रा. वी.वी.पाटील - लोक प्रशासन.
11. प्रा.दि.का.गर्दे - लोक प्रशासन तत्व आणि तंत्र

*****

Semester-II (Paper-IV)
THEORIES OF INTERNATIONAL RELATION

Marks : Theory – 80
In.Ass : – 20

Unit-I End of Cold War World : Meaning, Factors leading to the end of Cold War. Unipolarity and Diffusion in Regional Power Centres.

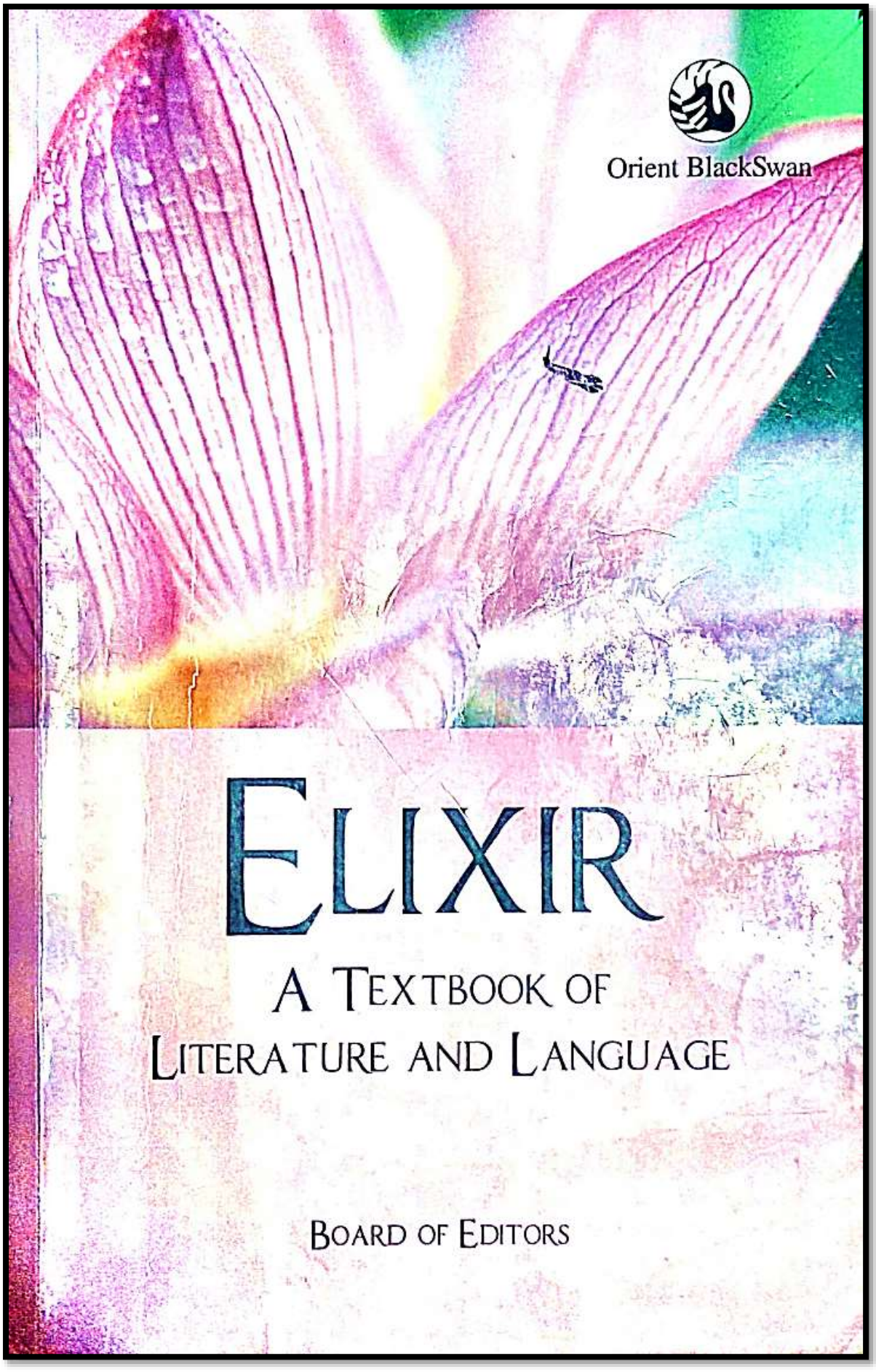
Unit-I North-South Dialogue and South-South Dialogue and their Major Issues.
Gender Issues : Theories, Conference, Impact of World Politics.

Unit-III Globalization : Meaning, Nature, its Advantage and Disadantage, Role of WTO, Liberalisation and its Changing Nature of State.

Unit-IV Environmental Issue : Environmental Degradation as Global Concerns its effects, Steps taken for Environmental Protection at International Level : Stockholm to Paris.

HEAD
Political Science
Shivaji College of Arts, Commerce & Science Akola

Syllabus
On
Human Values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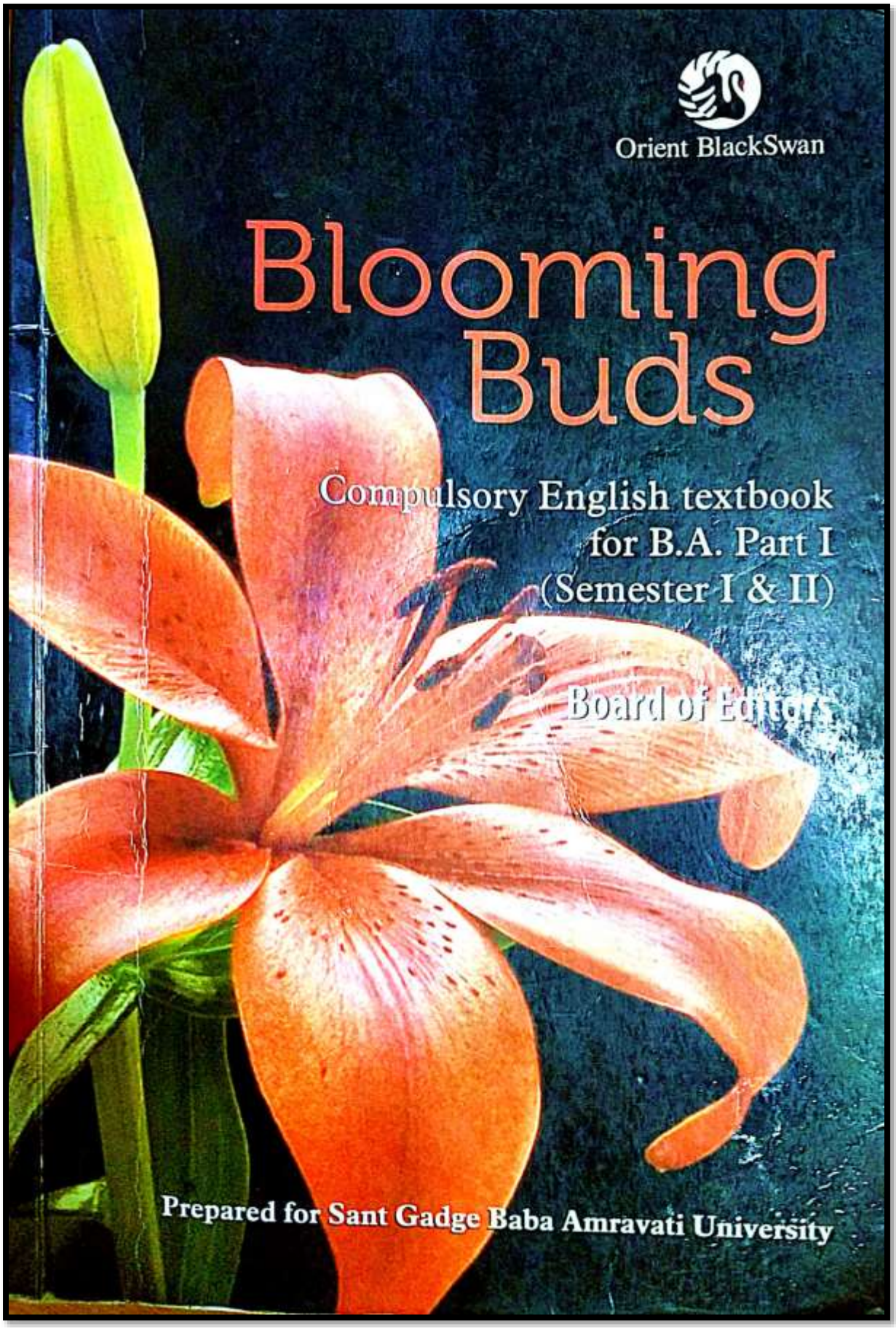
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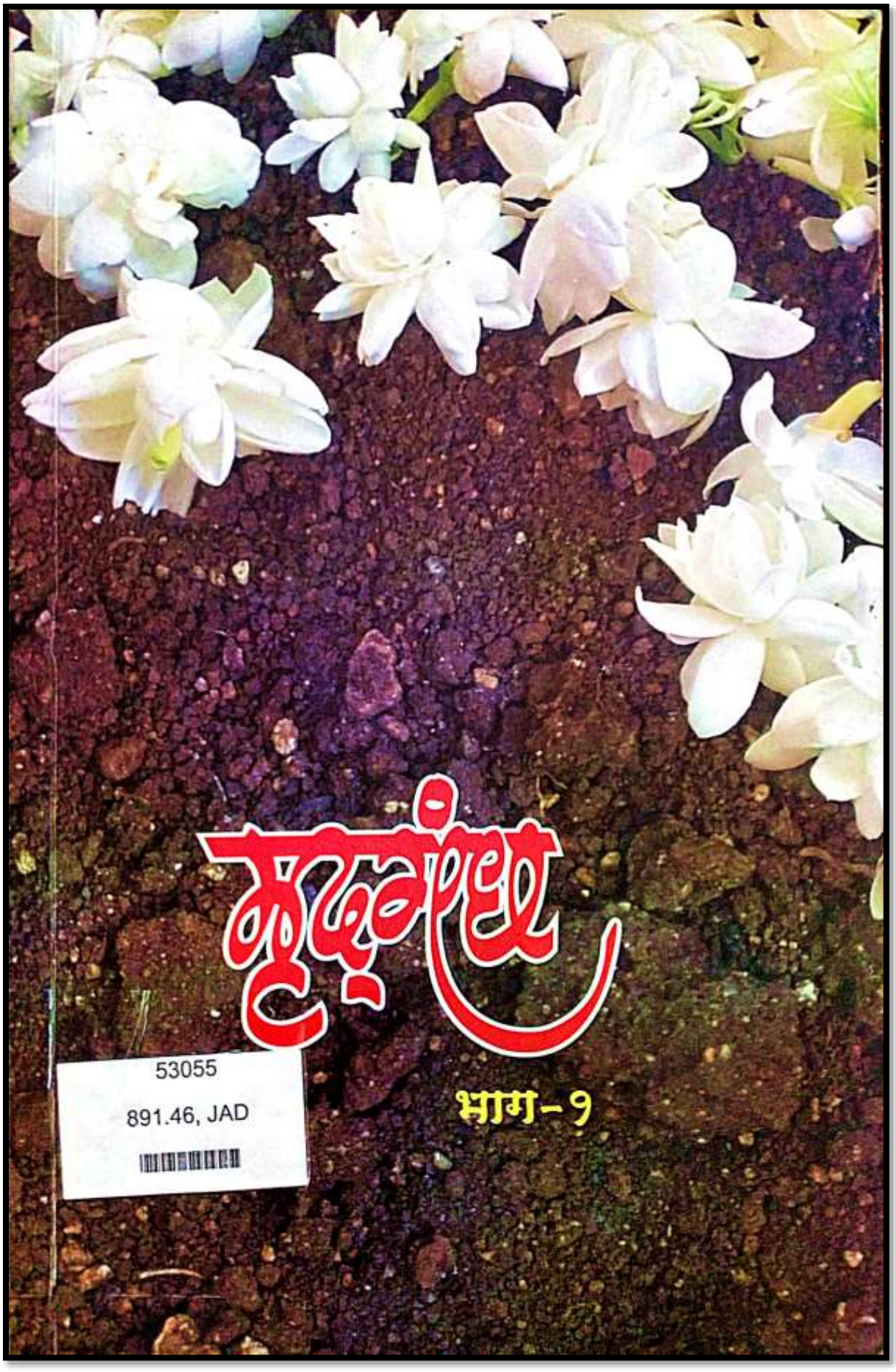
Blooming Buds
Compulsory English textbook for B.A. Part I (Semester I & II)
Board of Editors
Prepared for Sant Gadge Baba Amravati University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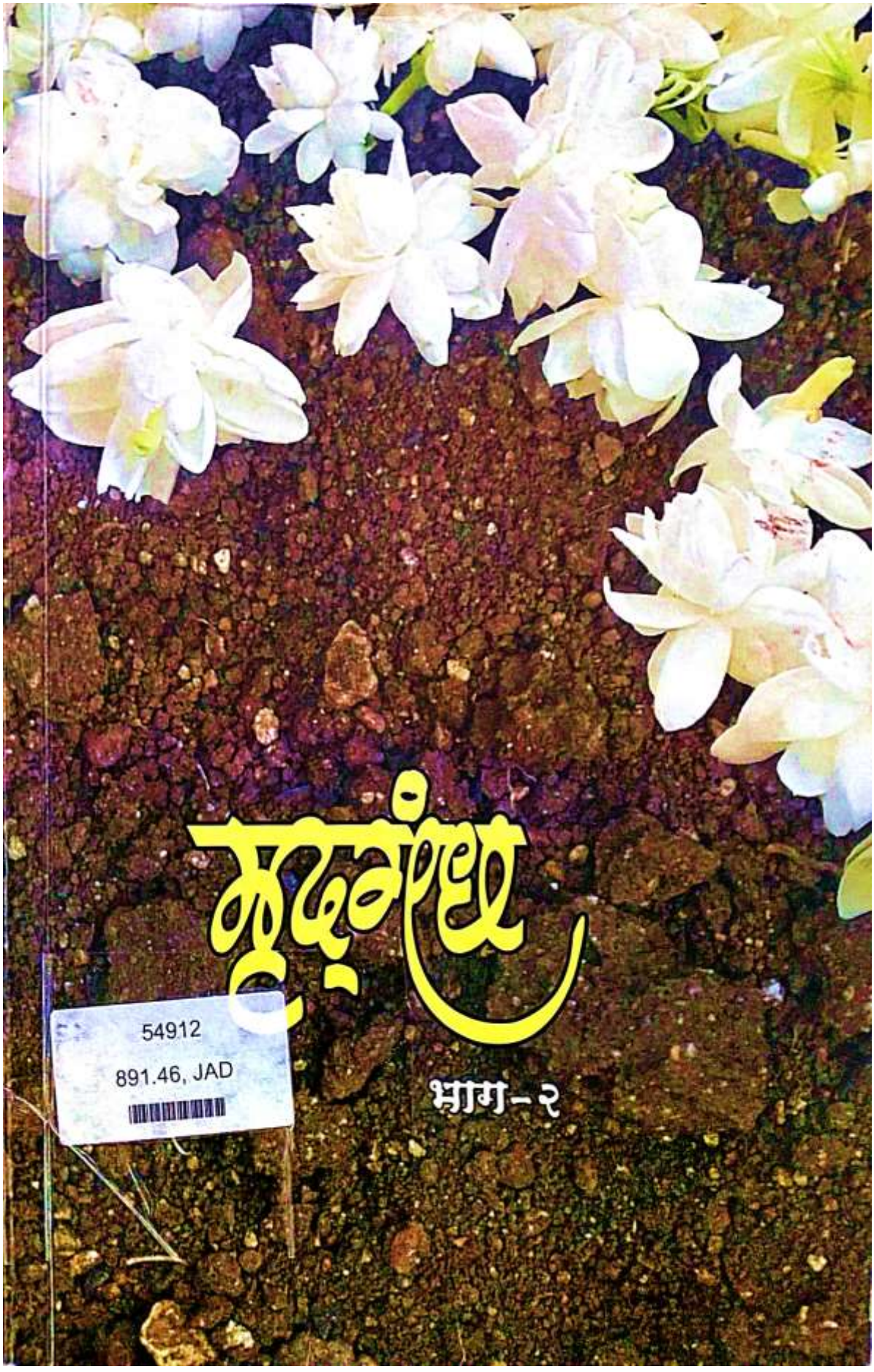
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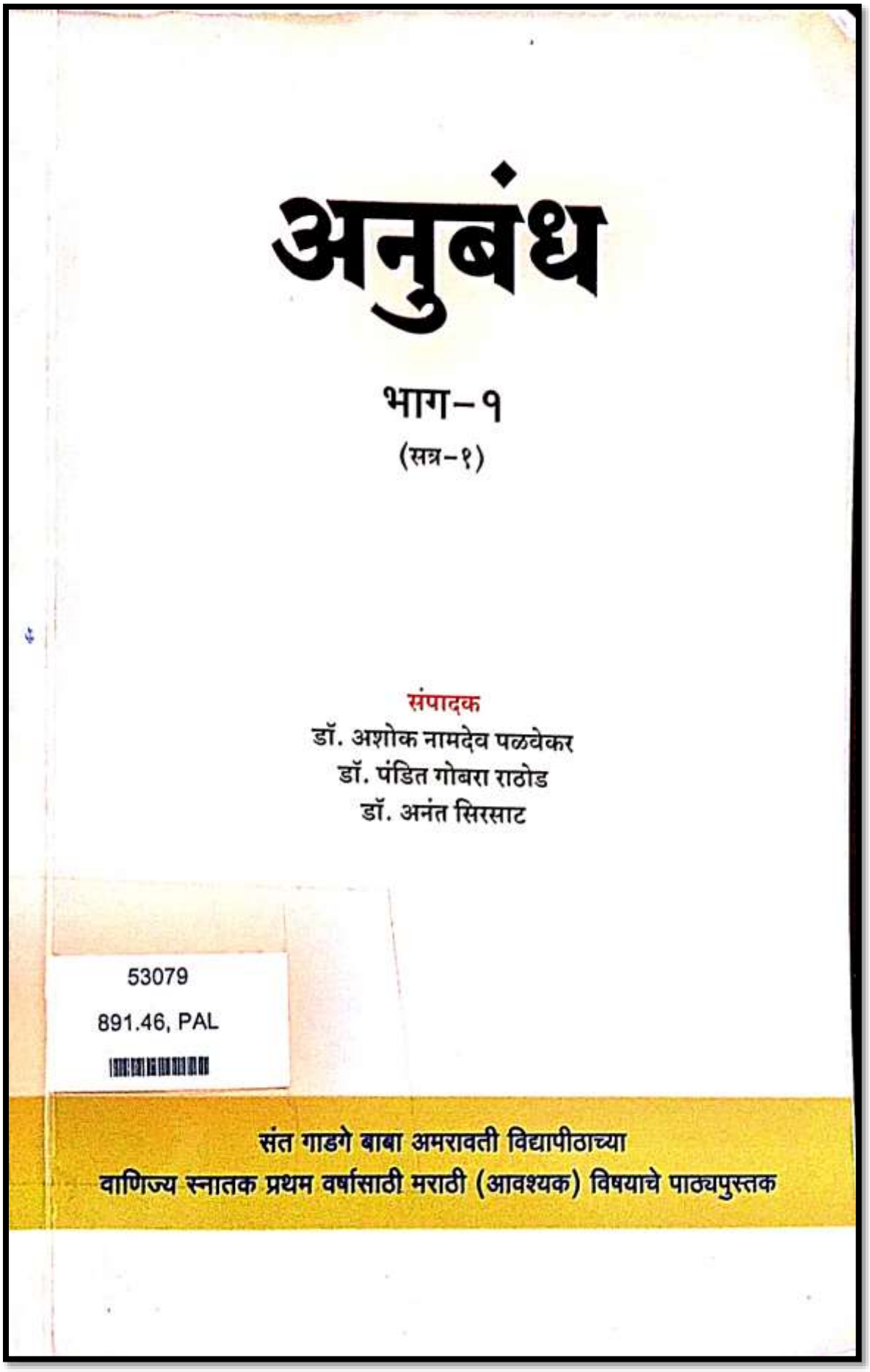
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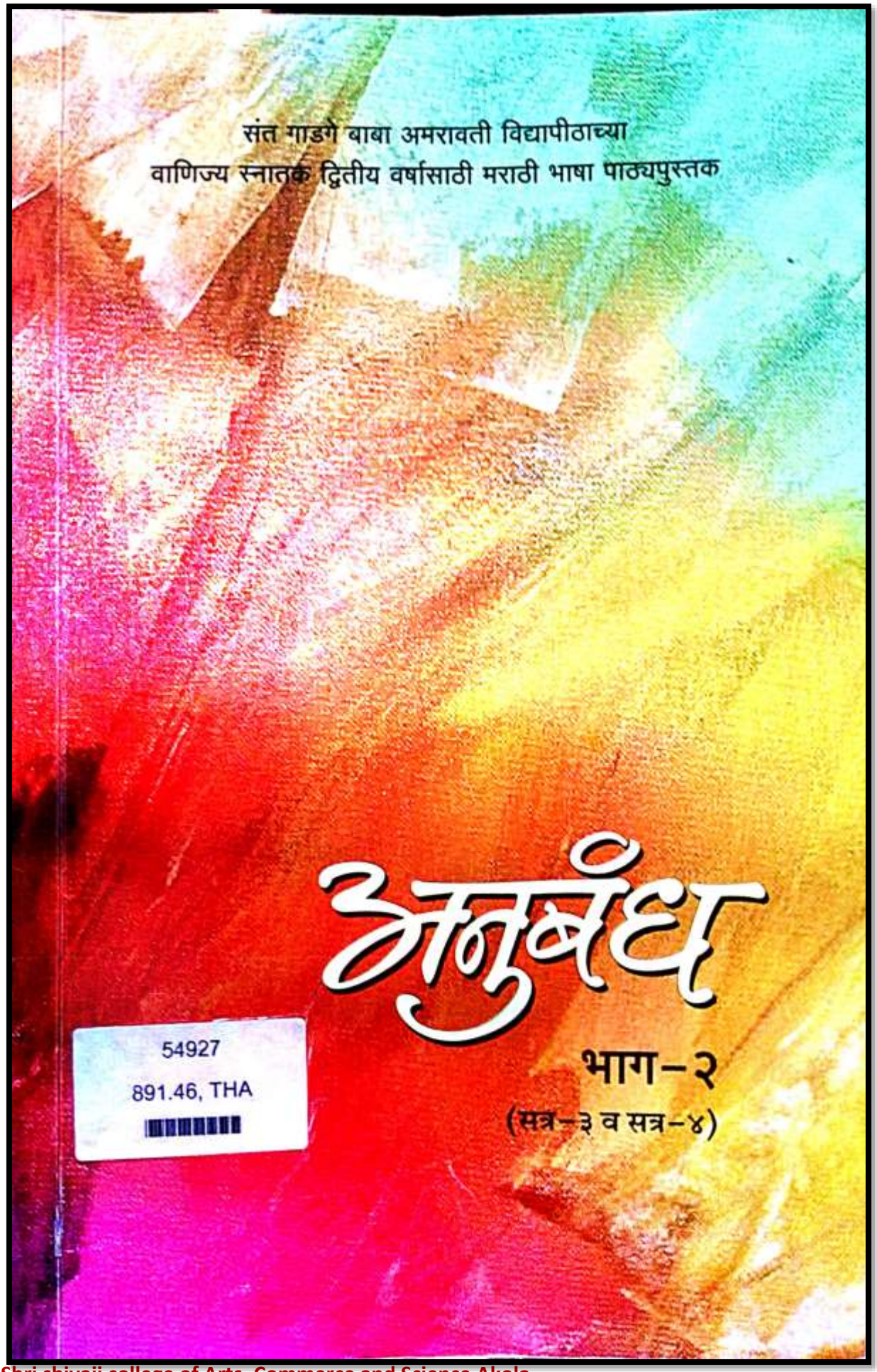
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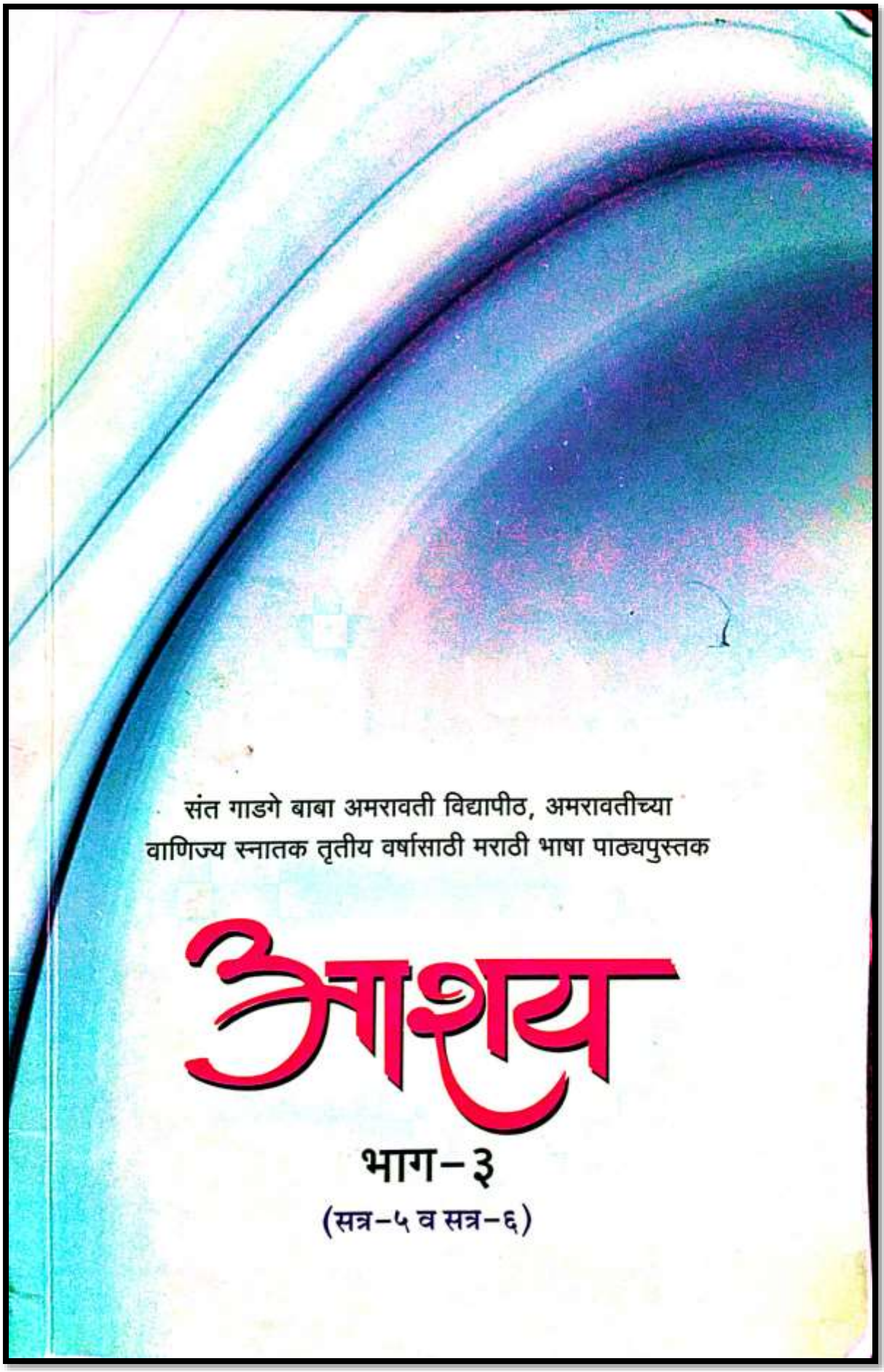
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आशय
भाग–३
(सत्र–५ व सत्र–६)

Shri Shivaji College of Arts, Commerce and Science, Akola

(DEPARTMENT OF ZOOLOGY)

Wild Life Week - 2023

Programme Details

Date 02/10/2023 Time : 12.00 Noon.
Inaguration of Wild life Week
Resource Person : **Dr. S. O. Kureshi,**
Professor, Dept. of Zoology,
Adarsh Mahavidyalaya, Dhamangaon Rly
Students : B.Sc. I, II, III, M.Sc. I,II
Incharge : Dr. Tushar Deshmukh
Place / Link : On Google Meet

Date 02/10/2023 Time : 2.00 PM.
E-Quiz on Wild Life for B.Sc. I, II, III
Incharge : Dr. Priyanka Ramteke
Place / Link : Link available on Whatsapp

Date 03/10/2023 Time : 12.00 Noon.
Poster Competition on Wild Life for B.Sc. III
Incharge : Dr. Tushar Deshmukh
Place / Link : At Zoology Department

Date 04 & 05/10/2023 Time : 7.00 AM.
Melghat Tour
Incharge : Dr. Hemant Sapkal

Date 06/10/2023
Rangoli Contest on Wild Life for B.Sc. II
Incharge : Dr. Ujwala Lande
Place / Link : at Zoology Department

Date 06/10/2023 12.00 Noon.
NET/SET Guidance Lecture
for P.G. Life Science Students.
Speaker : **Mr. Shubham Rathod**
Incharge : Dr. Ujwala Lande
Place / Link : At Zoology Department

Date 07/10/2023 12.00 Noon.
Lecture on Disaster Management
for All Zoology Students
Valedictory & Gust Lecture : **Dr. Sudhir Kohchade**
R.L.T. College, Akola
Incharge : Dr. Hemant Sapkal,
Dr. Priyanka Ramteke
Place / Link : At Vasant Sabhagruha

शिवाजी महाविद्यालय के छात्रों ने 'जैव विविधता' की जानकारी ली

लोकमत समाचार सेवा

अकोला : शिवाजी महाविद्यालय अकोला के प्राणिशास्त्र और वनस्पति विज्ञान विभाग के बीएससी-3 के छात्रों ने अजंता और आसपास के परिसर को भेंट देकर विविध जानकारी प्राप्त की. छात्रों ने वहां की गुफाओं और आसपास के क्षेत्र की जैव विविधता का अध्ययन किया.

यह यात्रा छात्रों के लिए उनके भविष्य के अध्ययन के लिए महत्वपूर्ण होगी. इसके लिए डॉ.ओक, डॉ. देशमुख, डॉ लांडे आदि ने छात्रों को विस्तार से जानकारी दी. इस शैक्षिक यात्रा की सफलता हेतु डॉ.तुषार देशमुख, डॉ.उज्ज्वला लांडे और डॉ.आनंद ओक का मौलिक योगदान प्राप्त हुआ. इस शैक्षिक यात्रा में 96 छात्रों का सहभाग रहा.

शिवाजी महाविद्यालयाच्या विद्यार्थ्यांनी जाणून घेतली जैवविविधता !

अकोला - श्री शिवाजी महाविद्यालय अकोला येथील प्राणीशास्त्र आणि वनस्पतीशास्त्र विभागातील बी. एस्सी. भाग तीन विद्यार्थ्यांनी ७ मार्च रोजी अजिंठा आणि आजूबाजूच्या परिसराला भेट देऊन त्यांच्यातर्फे विविध जाती संबंधी माहिती संकलन केली. तेथील डोंगर आणि आजूबाजूच्या परिसरातील जैवविविधतेचा अभ्यास विद्यार्थ्यांनी त्यांच्या अभ्यासक्रमातील अभ्यासक्रमांतर्गत महत्त्वपूर्ण दरम्यान. प्राणीशास्त्र डॉ ओक डॉ देशमुख, डॉ लांडे या शिवाजी महाविद्यालयातील त्यांच्यातर्फे विविध जाती संबंधी माहिती संकलन सुरुवातीला त्यांचे विश्लेषण केले. तेथील वेगवेगळ्या तेथील माहिती ते संपूर्ण माहिती नष्ट दिली. या शैक्षणिक सहलीत त्यांचे डॉ तुषार देशमुख, उज्ज्वला लांडे आणि डॉ आनंद ओक यांनी योगदान दिले. या शैक्षणिक सहलीत ९६ विद्यार्थ्यांनी सहभाग नोंदविला होता.

Shri Shivaji College of Arts, Commerce and Science, Akola

Guest Lecture on Competitive Exam

By

Mr Harshal Bais

2023-24

(DEPARTMENT OF ZOOLOGY)

SHRI SHIVAJI COLLEGE OF ARTS COMMERCE AND SCIENCE AKOLA (MS)

NAAC Reaccredited with A Grade College with "A++" Grade CGPA-3.58 UGC Status of College with Potential of Excellence Lead college status by S.G.B.A.U., Amravati DST-FIST SUPPORT

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Department of Zoology

Shri Shivaji College of Arts Commerce and Science, Akola (MS) on 02 to 07 September 2023.

Topic of Speech: Cell Culture

Date: 02-10-23

Chairperson	Resource person
Dr. A. L. Kulat	Dr S. O. Qureshi, Head
Principal	Adarsh Mahavidyalaya,
Shri Shivaji College of	Dhamangaon Rly
Arts Commerce and Science, Akola	

02-10-23	Quiz Competition
03-10-23	Poster Competition
04 to 05 -10-23	Melghat Tour
06-10-23	Rangoli Competition
07-10-23	Valedictory Function
	&
	Guest Lecture on Disaster Management

Chairperson	Resource person
Dr. A. L. Kulat	Dr. Sudhir Kohchale
Principal	RLT College, Akola
Shri Shivaji College Akola	


वन्यजिव सप्ताह


cvi-txvh-gwy
ANIMAL CELL CULTURE
SYED OBAID QURESHI
Syed Obaid is presenting


OPS Map Camera
Akola, Maharashtra, India

देशोन्नती

शिवाजी महाविद्यालयात वन्यजीव सप्ताह

देशोन्नती वृत्तसंकलन...

अकोला ▪ शिवाजी महाविद्यालयातील प्राणीशास्त्र विभागाद्वारे वन्यजीव व पर्यावरण संरक्षण संस्था अमरावती यांच्या संयुक्त विद्यमानाने वन्यजीव सप्ताह ०१ ते ७ ऑक्टोबर पर्यंत प्राणिशास्त्र विभागातर्फे साजरा करण्यात आला. या सप्ताह अंतर्गत १ ऑक्टोबर रोजी सप्ताहाचे उद्घाटन करण्यात आले.

यावेळी प्रमुख पाहुणे म्हणून [illegible] महाविद्यालयाचे प्राचार्य डॉ एस. आर. कुरेशी होते. प्राणीशास्त्र विभागप्रमुख डॉ प्रकाश आडे यांनी पाहुण्यांचा परिचय करून दिला तर महाविद्यालयाचे प्राचार्य डॉ कुलट यांनी वन्यजीव व पर्यावरण याविषयी विद्यार्थ्यांना मार्गदर्शन केले. डॉ कुरेशी यांचे [illegible] या विषयावर अभ्यासपूर्ण व्याख्यान आयोजित करण्यात आले होते. कार्यक्रमाचे संचालन डॉ तुषार देशमुख तर आभार प्रदर्शन डॉ प्रियंका रामटेके यांनी केले. दरम्यान, प्राणिशास्त्र विभागातर्फे दोन दिवसीय शिबिर सहल आयोजित करण्यात आली होती. सप्ताहाच्या समारोपीय कार्यक्रमाला डॉ सुधीर कोहचाडे यांनी विद्यार्थ्यांना मार्गदर्शन करीत नैसर्गिक

वन्यजीव, पर्यावरणावर मार्गदर्शन

विविध स्पर्धांचे आयोजन

वन्यजीव सप्ताहाच्या निमित्ताने प्राणीशास्त्र विभागातर्फे विविध स्पर्धांचे आयोजन सुद्धा करण्यात आले होते. त्यामध्ये प्रश्नमंजुषा, रांगोळी स्पर्धा, तसेच विद्यार्थ्यांसाठी वन्यजीव या विषयावर पोस्टर स्पर्धेचे आयोजन करण्यात आले होते. या विविध स्पर्धांमध्ये विद्यार्थ्यांनी भरभरून सहभाग नोंदविला. सर्व विजेता विद्यार्थ्यांना सप्ताहाच्या शेवटच्या दिवशी आकर्षक बक्षिसांचे वितरण करण्यात आले.

आपली व्यवस्थापनावर प्रात्यक्षिक दाखवून विद्यार्थ्यांचे मन जिंकून घेतले. प्राचार्य डॉ ए. एल. कुलट यांनी आपल्या अध्यक्षीय भाषणामध्ये प्राण्यांचे महत्त्व हे विद्यार्थ्यांना पटवून दिले. कार्यक्रमाचे प्रास्ताविक प्राणीशास्त्र विभागप्रमुख डॉ प्रकाश आडे, संचालन [illegible] इंगळे तर आभार प्रदर्शन संयुक्ता [illegible] यांनी केले. कार्यक्रमाच्या यशस्वीतेकरिता डॉ [illegible], डॉ तुषार देशमुख, डॉ उज्ज्वला [illegible], डॉ प्रियंका रामटेके, [illegible] व [illegible] यांनी सहकार्य केले.

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Shri Shivaji Education society, Amravati's

Shri Shivaji College of Arts, Commerce & Science, Akola

A Report On

Geological Study Tour

To

"UTTARAKHAND"

In an around Dehradun and Mussoorie Syncline

During 16th to 24th January 2024

Submitted by,

Tour Incharge

Dr. G.D. Gaikwad
Head, Department of Geology & Geoinformatics
Shri Shivaji College of Arts, Commerce & Science, Akola

Ms. P.K. Gopnarayan **Ms. N.K.Sable**
Asst. Prof. (Ad-hoc)

2023-2024

Index

- Collection of rock samples of different rock types from Dehradun, Nainital and alongside areas.

Equipments

The Equipments that are used during the geological field work are as follows:

- Brunton Compass
- Hammer
- GPS
- Lens
- Camera
- Google map

- Topographic map
- Field Notebook
- Marker pen

Methodology

Determination of Lat/Lon

During field work latitude, longitude and elevation were taken of each and every location from where the samples were collected with the help of Garmin GPS.

Determination of Strike and Dip

A Strike Line is a line which joins two points of equal elevation on a particular bedding plane. It may also be defined as the direction of the line formed by intersection of a bedding plane and horizontal plane. The strike line is always at the right angle to the dip direction. The strike lines are important because they show dip of inclined strata.

The angle of inclination of a rock bed with the horizontal plane is known as dip. It is measured in a plane perpendicular to the strike line. During field work Strike, dip direction and dip angle of different rock formations and beds were taken with the help of Brunton compass.

Study of Structure and Texture of rocks in the study area:

Dehradun, Mussourie, Nainital and alongside areas consist of major rocks mainly as of Sedimentary and Metamorphic rocks.During field work all rocks were identified on the basis of their texture and structure and mineral composition and photos, samples were collected carefully.

Mapping

Mapping was carried out of the area showing the geographic features and different rock formation, strike, dip, elevation, lat/long and direction with the help of GPS and Brunton compass.

REGIONAL STRATIGRAPHY

A general summary of the stratigraphical units of the area is given below. The following is the succession of various rock formations studied in the area:

Table: Detailed lithostratigraphy of the proposed GSS for terminal proterozoic system , Maldeota section, Mussoori syncline, lesser Himalaya, India.

----------local distance----------			
		Upper Member (Krol E)	calcareous ferrugious shale interbedded with argillaceous limestone(228m).it has yielded Acritarch and algal filaments (Singh and Rai,1983; Venkatachala et al.,1992)
Krol Group	Kauriyala Formation	Middle member, (krol D)	dolomite, thick bedded, gray with thin beds of shale-silstone. It contain nodules and thin lenticular beds of black chert(636m). it has yielded Ediacaran fossils; Charniodiscus sp., Conomedusites sp., Beltanella sp. And beltanelliformis sp. From adjoining eastern part of the Garhwal syncline(mathur and Srivastava, 1992; Shankar et al. 1992,1997); and stromatolites(Tewari, 1987)

Blaini Group	Blaini Formation	Member G	Red-green shale and pinkish lenticular dolomite(4m)
		Member F	Diamictite
		Member E	Dark gray shale interbedded with thin bands of quartz arenite (4 1) (249m). microbiota
		Member D	White quartz-wacke inetbedded with shale (342m). conglomerate, at places with calc. matrix (56m)
		Member C	Grayish white arenite(106m). Diamictite with calcareous Bands (50m). greenish to purple quartz arenite, current bedded with thin shale (256m). microbiota (Joshi et al. 1987; Maithy et al. 1995).
		Member B	Rhythmite-greenish &

		Lower Member (Krol c)	Dolomitic limestone showing vuggy and birds eye structure with pockets of gypsum(134m)
	Jarashi Formation	Upper Member	Rhythmitic alternation of calcareous siltstone and shale(40m)
		Lower Member	Purple siltstone, shale and green shale with lenticular dolomite (14m). in adjoining Garhwal Syncline also contain lenticular beds of gypsum
	Mahi formation (Krol A)		Argillaceous limestone interbedded with greenish gray calcareous shale (254m)
	Infra Krol Formation		Black shale bleaching to ash gray

		Member A	gray shale interbedded with thin arenite(805m). Microbiota Lenticular diamictite and or conglomerate(137m)

Unconformity

Jaunsar/ Simla(Tonian- early Cryogenian)

Siwalik Group (Middle Miocene to Early Pleistocene)

The Siwalik group represents the thickest of continental deposits related to Himalayan orogeny. These are the products of weathering from the rising

Himalaya during the Middle Miocene – Early Pleistocene period. this sediments were evidently deposited in four deep developed in front of the rising Himalaya.

The Siwalik group represents a sequence of Sandstone beds formed in fluvial environment, mudstone, conglomerate and sub ordinate marl. The group is classified into Lower, Middle, and Upper Siwalik Subgroups. The Lower Siwalik Subgroup largely consist of red/purple mudstone with minor sandstone; Middle Siwalik Subgroup is predominantly micaceous grey sandstone with the alternating reddish brown clay and Upper Siwalik occurs as a polymictic conglomerate with subordinate sandstone and grit.

The Siwalik group exhibits complex channel and fan system. These rocks have suffered considerably due to Himalayan orogeny, structurally and geomorphologically. In Dehradun area, the significant tectonic features are Mohand and Santurgarh anticline and the Dun Re-entrant. The Dun Re-entrant is fault bound along the eastern and western margins by the Ganga and Yamuna tear faults respectively. The MBT/ Krol thrust delineats the northern boundary and HFF demarked the southern boundary of Siwalik group. In Dehradun sector – Siwaliks are differentiated as Middle and Upper Siwaliks. The sandstone exposed on the Dehradun – Mussoorie road near Malsi Deer Park, belongs to Middle Siwaliks.

Older and Newer Alluvium (Middle Pleistocene to Holocene)

Quaternary Deposits of Gangentic Plain occurring south of HFF, in the intermountain Dun Valley and the river terraces consist of Older and Newer Alluvium is characterized by the polycyclic sequence of brown oxidized sand, silt and clay with calcretes. The Dun Gravel comprises unconsolidated conglomerate having clast of quartizite, limestone and slate with sandy matrix. The river terraces confined within the paleo-banks of the river constitute the Holocene deposits.

Mal Devta- Gopi Chand ka Mahal Sector

Jaunsar Group (Neoproterozoic - Cryogenean)

Jaunsar Group, the redefine Jaunsar series of Oldhan (1888) constitutes the basalt part of the Krol belt in this sector. it rest over the Morar Chakrata Formation with a tectonic contact. Its start with conglomerate, shale/slate, quartzite and carbonates (Mandhali Formation); phylite slate with shelly limestone (Chandpur Formation); and buff, purple and green quartz arenite, occasionally gritty conglomerate and harden shale (Nagthat Formation). The Nagthat Formation conformably overlies the Chadpur Formation. The quartz arenite member of the formation exhibit bleaching appreance mainly due to the weathering of the constituent pyrite.

The Jaunsar Group by and large, is unfossiliferous. However, its correlation with the Shimla Group in the adjoining area of Himachal Pradesh has helped to assign a Neo Proterozoic age for the Group.

Baliana Group

Blaini Formation :- One of the most prominent litho-units in the western Himalaya is the Blaini Formation. It acts as a marker for horizon in establishing Stratigraphy and structure of the Himalayan sequence. The Blaini Formation is represented by Dimictite, quartz arenit, Rhydthmite, pink shale and microcrystalline and thinly to thickly bedded dolomitic limestone. Veins of barites have also been recorded elsewere. Dimictite contains angular to rounded cobbles/pebbles of mud stone, quartz arenite, vein quartz and carbonates in between 1 m to 1 cm in clayey to grity matrix. At places Dimictite exhibits chaotic assemblages with excellent rounding of cobbles and pebbles suggesting dumping of material by floating icebergs near to shore line later modified by fluvial agent. Presence of pink carbonate suggest warm climate condition for its precipitation. Field, petrographic and biota recovered from

Blaini Formation fevers the view its deposition in shallow, marine, intertidal flat region.

Presence of cynophycean algae, acritarch, Ediacaran fossil- Betanellisformis sp. and stratifera – undata points to Late Proterozoic Age.

Infra Krol Formation :- A thick sequence of shale/slate interbedded with the thin silty layer and quartz arenite occurs sandwiched between Blani Formation and the overline rocks of Krol Group. The shales are green, bleach and carbonaceous with ubiquitous pyrite. The quartz arenite is similar to quartz arenite of Blaini Formation. In certain areas where Dimictite and pink limestone show pinching of the strata, recognization between two formations become difficult. Infra Krol Formation is a product of low energy tidal flat to lagoonal environment. Cynobacteria of Late Proterozoic age has been reported from this formation.

Krol Group

The krol group is dominantly a thick pile of carbonate rock with intervening shale, siltstone and minor quartz –arenite at places. The sequence exhibit deposits of shallow intertidal to supra-tidal basin with well-developed algal mat facies giving distinct signatures of reducing and oxidizing environment in the middle part of sequence.

Mahi formation : The Mahi formation (Krol A of Auden) Overlies the infra krol formation and consist of light to grey limestone, greenish grey calcareous shale and marl. A sandstone unit is exposed in the Solan area, west of Mussoorie.

Jarashi Formation : The Jarashi formation (Krol 'B' of Auden) occurs as soft thinly laminated purple –violet shale with green blotches and consisting of thin lenticular,

light coloured dolomitic limestone. Gypsum is also reported from this horizon. The Jarashi formation exhibits lenticular bedding; mud cracks and shows development of algal mat textures.

Kauriyala Formation: The Kauriyala formation (krol C, D & E of Auden) is a thick sequence of carbonates and is represented by three distinct litho units. The lower unit (Krol C) is made up of bluish grey brecciated limestone exhibiting bird's eye structures. Gypsum and quartz occur as fracture fillings. The Middle unit (Krol D) is characterized by l algal dolomite, stromatolite and vuggy structures, and is interbedded with grey and purple shale, siltstone and quartz-arenite. Chert lenticles are common in the upper part. The upper unit (Krol E) is represented by grey limestone, khakhi green purple shale, grey calcareous shale, siltstone, marl and dolomitic limestone.

The Kauriyala Formation was the site of colonial activity of algae. Algae like stratifera, onophyton, Baicalia; Calcareous algae- Renalsis and soft bodied Colentrates- Pteridinium sp. Zolotytsia sp. (Krol D) and planar grazing traces belonging to Shannxilithes ningquiangensis (Krol E) thrived during the deposition of Kauriyala Formation.

Tal Group

A thick sequence of argillo-arenaceous rocks beginning with chert-shale-phosphorite and terminating with the deposition of quartz-arenite constitutes the Tal Group. The Tal Group is capped by shell, limestone. The Group begins with a protected lagoonal environment followed by mixed flat to sand flat deposits of inter-tidal zone and ends up with the deposits of shoal complex in shallow tidal sea indicating high energy condition towards the top. Presence of algal carbonate points to a warmer climate during its precipitation.

Dev Ka Tibba Formation

Dev Ka Tibba Formation consists of bedded black chert, shale and rock phosphate (Chert phosphorite Member); black pyritous shale with carbonate lenses at places (Argillaceous Member); fine grained micaceous sandstone and thinly laminated siltstone (Arenaceous Member) and yellowish weathered, calcareous siltstone with occasional limestone bands (Calcareous Member).

The Chert-phosphorite Member exhibits small shelly fossils like Anabarites sp., Circotheca sp. And Protohertzina sp. Correlatable to Meishucunain zone I of China (Early Tommotian stage). The Argillaceous Member contains Acritarchs – Baltispheridium, Granoarginata and many more. The Arenaceous Member is rich in microfossils – Damidia sp., Allonia sp., and trace fossil – Skolithos, Diplicnites, Monomorphichnus etc. This assemblage is correlatable with Meishucunian zone III (Upper Tommotian stage) of south China. Interestingly, trace fossils are yet to be reported from Meishucunian zone II. Microgastropods also have made their first appearance in this member. Calcareous members host varied types of trace fossils, trilobite and brachiopods of Atdabanian stage.

Dhaulagiri Formation

Dhaulagiri Formation corresponds to upper Tal formation without shell limestone. It is a pack of white gritty quartz-arenite exhibiting cross bedding and graded bedding ('A' Member); grayish black shale with shale nodules and thin quratz – arenite bands ('B' Member). This sequence contains trilobite Redichia noetlingi, brachiopod – Magnicanalis, Lingulella, Obolus and Obolella of Botomian stage of Early Cambrian. This horizon serves as marker in the stratigraphy of Tal Group. Feldspathic cross-bedded arkosic quartzite is also present ('C' Member). Presence of pyrite gives an ochre colour to this sequence. The sequence is followed upward with interbedded algal limestone and quartz arenite ('D' Member) which in turn is

followed by earthy white to buff coloured cross bedded quartz arenite with silty layers ('E' Member).

Marine Transgression

Evidences of wide spread marine transgression making the beginning of Indosinian tectonic stage during the Early Permian and another at Late Cretaceous – Eocence time related to Yanshanian tectonic stage give clues to an era of marine life, in the transect area.

Jogia Formation (Early Permian)

The erstwhile Boulder Slate Formation now redesignated as Jogira Formation is developed in the Garhwal Syncline (Out of study area). The Formation comprises slate, Phyllite, quartzite, boulder slate, siltstone and sandy limestone *Fenestella garhwalensis* , Linoproductus cora, Neospirifer fascier of Early Permian age are some of the fossils recovered from thos strata.

Nilkanth and Subathu Formation (Late Cretaceous – to Middle Eocene)

Another marine transgression could have taken place during the Late Cretaceous orogenic movement. The time span is represented by two facies – Nilkanth Formation (Cretaceous age) and Subathu Formation – (Eocene age).

Nilkanth Formation

The Nilkanth Formation consists of dark grey massive shelly limestone containing abundant broken shells of bivalves, bryozoa of Late Cretaceous age unconformably overlying the quartz arenite sequence of Dhaulagiri Formation, (Tal Group). Development of laterite at the contact is very conspicuous.

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Subathu Formation

The Subathu Formation is made up of grey, purple, olive coloured shale with lenticles of limestone and ferruginous oolite. It has yielded foraminifera of Late Palaeocence to Early Eocene age.

GEOLOGICAL STRUCTURES

- ***Folding***
- ***Joints***
- ***Crenulation cleavages***
- ***Lineaments***
- ***Fault***

LOCAL GEOLOGY OF DEHRADOON :

INTRODUCTION

A field work is part of fulfillment of university syllabus of M.Sc. Geoinformatics students. The area of Dehradoon includes the local geology and its stratigraphy, geological setting and some special physical features like hot spring.

Local geology of Dehradun concern with the Shivalik system containing number of series. Siwalik system is originated during the middle Miocene, by the principle phase of upheaval of the Himalaya's. As a result the mountains uplifted considerably and the convex side of Himalayas was fringed by a narrow and elongated depression, within which the sediments of younger age accumulated and gave rise to the shivalik system. The shivalik system name after the shivalik hills is developed of along the foot-hills of the Himalayan arc and constituent a total

thickness of the order of 16000 to 18000ft. it is composed mainly of sandstone, conglomerates, silts and clays which shows the fresh water environment during their formation.

In Dehradoon we visited to different sports.

Location-a

KMT Waterfall area :13 km north of Dehradoon city.

Near Sansun river due to the structural disturbance below the earth surface that is due to the volcanic or magnetic chamber is in contact with the sedimentary rock which contains sulphide or sulphur resulting the water is of the sulphur impurity.

Hot Spring

Hot springs are or holes through which hot water escape to the surface.Water from hot spring sometimes highly charges with other materials. These water carry good

amount of volatile content are good solvents of material in solution it can take into solution silica which may be deposited afterwards on the surface. Such deposites are called siliceous sinters. Other substances like borax,alum , sulphur and arsenic compound are found in such waters forming respective names of hot spring. In Sahastradhara area such type of features observed by us.

Visit to "Wadia Institute of Himalayan Geology, Deharadun"

This institute is mainly established for study of Himalayan Geology, Dr. D.N Wadia worked & research on Indian geology his name was given to this Institute. We visited to Wadia institute dated on 8th nov 2006. We first visited to geophysics dept in which Dr. Sushilkumar (SCIENTIST) guided us for the seismological study. Especially he introduce to us about the different types of seismological waves. He gaves lots of information regarding seismogram.Geology of lesser Himalayan sequences in Mussoorie Syncline around

Dehradoon- Mussoorie area

INTRODUCTION

The Dehradun- Mussoorie sector of Doon valley exposes well-developed and excellent successions of lesser and sub-Himalayan rocks. In Mussoorie Syncline, the lesser Himalayan succession includes two sequences. The older one is represented by low grade Mesoproterozoic (ca 1200-1500Ma) rocks of Jaunsar Group, with Chandrapur and Nagthan formation. The younger one includes upper Neoprotorozoic (Ediacaran) and lower Paleozoic (Cambro-Ordovician) mixed carbonate-siliciclastic sequence of Blaini-Krol-Tal Sequence. In addidtion, thin succession of marine Cretaceous (Shell Limestone) and Eocene (Subathu Limestone) are also present. The Maldevata-Khetu traverse represent an excellence section of Blaini-Krol-Tal Sequence of the Krol Belt representing the Ediacaran and Cambro-Ordovician rocks. The Blaini Boulder beds (Blaini Diamictile), occurring at the base of this sequence is well correlated with the lower

Ediacaran glacial event referable to Varanger/Marinoan glaciations (ca.630-600Ma.). this sequence unconformably rests over the metasedimentary sequence of Mesoproterozoic Chandrapur/nagthan formations of Jaunsar Group, and overlain by the lower Permial/Upper Creataceous successions. These successions have been folded during the first Himalayan orogenic movement (HOM-1), and now occure in several detached synclines. Among this mysoorie synclines of garhwal region has been studied in detail by number of geologist for litho and biostratigraphy as it's has been on of the candidates of GSSP site for the ediacaran stage. A generalized stratigraphy of Blaini-Krol-Tal sequence in mussoorie synclines is shown in table 1.

DOPPLER RADAR INSTALLED IN SURKUNDA DEVI

BIOSTRATIGRAPHY

The Blaini-Krol-Tal sequence of the lesser Himalayan are, poorly fossiliferous with rare occurance of doubtfull and questionable invertebrate fossils, and subjected to controversy among geologist prior to discovery of marker Ediacaran and cambro-ordovician micro and megafossils. The biostratigraphic studies carried out during the last two decades had generated new and interesting megafossils that added immense value in defining and perceiving the age, depositional environment and stratigraphic relationship of different formations. Azmi et al. (1981), kumar et al.(1983&1987), Bhat et al. (1983,1985), Tripathi et al.(1984) and Brasier and Singh (1987), Prasad et al. (1990) in corporated lot of biotic evidences particularly small shelly fossils, conodones, trilobites, trace fossils and acritrachs of Ediacaran

and Cambrian affinities from the Krol and Tal formations of mussoorie synclines. Azmi et al. (1981) recorded cambro-ordovician Boundry conodonts from the chert-phosphorite member of Tal formation. Later on no of workers recoreded varied group of fossils from the Blaini-Krol-Tal sequence ranging in age from late Precambrian to cambro-ordovician. These are the conodones and other shelly microfossils (Azmi, et al.1981,1983,Azmi pancholi,1983;Bhatt et al.,1983,1985;Kumar et al1987), small brachipodes, gastropods and trace fossils (Bhatt et al 1983,1985;Mathur and Joshi,1988;Tripthi et al 1984;Kumar et al.1983&1987), stomatolites (Tiwari,1994), trilobites and impressions (Brazier and Singh,1987; Joshi et al,1989;Singh and Rai,1983;Rai and Singh,1983) and achritarchs (Joshi et al ,1988;Prasad et al,1990;Kumar and Rai,1992;Tiwari and Knoll,1994;Maithy et al.1995;Venkatachala et al.1995). this findings conclusively established the age for Blaini-Krol-Tal sequence as Ediacaran to Cambro-Ordovacian.

Above micro fossils evedences conclusively establishe that the Blaini-Krol-Tal (BKT) sequence ranges from Ediacaran to Upper cambriab –lower Ordovician Kumar et al. (1999), based on the occurance of above recoverd fossils are different stratigraphic levels, and $_{\delta}c^{13}$ excursion mark the Precambrian-cambrian boundary at the contact of Krol-Tal formations. Interestingly, the above given Precambrian-cambrian boundry is very close to that of Prasad et al. (1990) who mark the Precambrian-cambrian boundry within the Krol-E unit on the basis of appearance of microsculptured acanthomorphic achritarch in the Krol-E sediments.

Field Traverse

A transverse from the village Kesarwala to Gopichand ka Mahal lying in the southern limb of the Muscovite Syncline enables one to come across all the major lithounits of the Karol belt. The transect cuts across the regional trend of all the individual lithounits and the designed stoppage can be help a beginner in understanding the structure and stratigraphy to a reasonable extent.

Stop 1 (A&A): at this stop, which is 500 m before "Maldevta water mill" the contact between naghat formation and diamictite of Blaini formation can be examined. The naghat formation at the stop (A) is white to earthy white thickly bedded hard compact quartz arenite .zircon tourmaline and rutile is the prominent heavy mineral assemblage. The naghat formation shows high order textural maturity. The Blainy formation is represented by pebbley silt stone with alternating buff to brown quarz-arenite. The pebbles are mostly of shell and quartzite (fig 5&6).

Stop 2: About 100meter from "Maldevata temple" contact relationship between the diamactite and qurtz-arenite of blaini formation can be examined. Discontinuous earthy white thickly bedded quartz-arenite is exposed between the two diamactite horizons. The blainy quartz-arenitelilthologically, minrologically

and texturally appears very similar to quartz-arenite of naghat formation. The rock shows large scale cross bedding and ripple surface graded bedded can also be seen in care full examination the diamactite on either side of this unit is class supported. The clasts are bigger in size and sub rounded the rounded in shape the clasts appear to be dumped at the sit of deposition as they fail to exhibit any regular pattern of orientation in a silty matrix.

Spot 3: Near the village Saikri, towards PPCL mine, besides the pebbly mudstone, other constituent viz;quartz-arenite, shale, rhythmite and pink dolomitic limestone of Blaini Formation can be examined.

The pebbly mudstone (B) is dark grey in colour. It is the IVthdiamictite horizons but is different other in constituent (lithology and texture). The elliptical to sub rounded mud clasts are dispersed randomly in muddy/clayey matrix development of incipient fracture cleavage can be seen in this pebbly mudstone.

The underline sequence comprises allterlating grey hardened shale, rhythmite. Just 50 meter ahead, in the nala section,the pebbly mudstone is capped by platy pink dolomitic limestone,which demarcate the end of Blaini Formation. This horizon in the Chipaldi nala has yielded stromatolite – stratifera undata. The diamectite and pink dolomitic limestone shows pinch and swell characters; hence at different places Blaini behaves differently. Chaotic nature of daimictite, presences of parallel / lenticular bedding , rippled surfaces , indicate a mixed environment ; wherein daimictite appears to be the sea shore modified by fluvial regime ona tidal flat front.

Spot 4: At this stop,the transitional passage of bleached of shale of Infra Krol (Baliana Group) and greenish calcareous shale of Mahi Formation (Krol A) can be examined.

Crenulation cleavage is well develop toward the lower part of this Formation. The exposure is about 50-60m wide and is succeeded by Kauriyala Formation.

At about 50m before this stop is exposed bleached shale of Infra Krol Formation. Two sets of lineation are develope at obtuse angle with each other.

The Infra Krol Formation indicates lagoonal or embayment environment of deposition which is followed by limestone mud (Krol A) deposition in the subtidal – intertidal zone.

Spot 5: About 500meter from the sharp "U" bend near the abandoned limestone quarry on Dubra-Jaintwari foot track,contact between Mahi and Jarasi formation(Krol B) as well as limestone of Kauryala formation can be examined.

The Jarashi formation overlies the yellowish weathered limestone of Mahi formation south of limestone quarry on foot track leading to Jainty Wari. Jarasi formation is represented by the dominance of purple and greenish shale with thin limestone bands. Gypsum too is reported from many section.This sediment indicate intermittent exposure and represent deposits of protected embayment.

The quarry exposes the limestone of lower Kauriyala formation.It comprises blueish grey crystalline limestone and dark thickly bedded to massive dolomitic limestone. On hammering it produces hydrogen sulphide(H_2S)smell.

Nagthat formation.

The thinly bedded Chandpur formations passes transitionaly in to thickly bedded Arenaceous unit associated with thin laminations of siltstone and argillites. It is well developed at point 3, where, arnaceous sequence of Nagthat formation display various sedimentary features, such as cross stratification, ripple marks and current

bedding. A mixed to tidal flat depositional environment is inferred to Nagthat formation.

Birds eye,oolite and algal mat structures indicate inter tidal to supratidal environment of deposition.Presence of gypsum (elsewhere)and oolite indicate evaporatic conditions that prevailed during the deposition under high energy conditions.

This stop also exposes algal dolomite(Krol D) of upper Kauriyala formation.Dark grey massive stromatolitic dolomite is exposed at the 'u' bend on Dhalian-Mahindrapur ridge it characterised by the presence of algal mat dolomite.

Elsewhere,purple shale within this unit has yielded many Ediacaran fossils.The algal mat dolomite and presence of Ediacaran fossils indicate tidal flat environment.

Spot no. 6:- About 50 metre from spot 5 towards Khetu, thickly bedded to massive purple and greenish grey calcareous shale constituting top most part of Kauriyala Formation (Krol E) can be examined. Laterally these shales pass into massive bluish green limestone. These are deep sea calm water deposits possibly of sub tidal zone.

Spot no. 6 E1:- Base of Dev Ka Tibba Formation consisting of bedded black chert, shale and rock phosphate (Chert-Phosporite Member) is exposed on the road section, cutting Nihaldanda – Dubra Ridge. It is a 5m thick exposure comprising dominantly earthy shale and black chert.

Spot no. 7:- 20 m from spot 6 near village Dhaliyan towards khetu, a sequence of carbonaceous, pyritous shale with lenticels of limestone overlies the purple shale of Kauriyala formation with a transitional contact. The weatherd surface of

pyritous shale shows white incrustation of carbonate and yellow coating of sulphur.

Spot no. 8 G:- About 150 m from spot 7 towards Khetu, arenaceous lothofacies of Deo Ka Tibba formation can be examined. The dominant litho unit of Arenaceous Member occurs on micaceous, laminated, thickly bedded grey to purplish grey siltstone. Iron staining is quite conspicuous. Purple siltstone exhibit discoloration zone of various shape cutting across stratification.

Spot no, 9 H :- At the U bend on 1630 spur, terminating south of Loharkha nala, the influx of carbonate within siltstone can be examined. The siltstone or sandstone sequence of Arenaceous member becomes calcareous siltstone or sandstone towards the upper part of formation.

Spot no. 10:- About One kilometer from spot 9 near the nala bend towards Khetu, the basal A member of Dhaulgiri Formation can be examined. The buff to light brown coloured calcareous quartz arenite of calcareous member passes into coarse to grity quartz arenite (A member) mega cross bedding, rippled surface and graded bedding are the chief sedimentary structure of this member.

Spot no. 11 :- About 100 meter from spot 10towards Khetu, B member of Dhaulgiri Formation comprising grey fossiliferous shale with thin inter-bedded earthy white quartz arenite can be examined. The shales are extremely rich in Brachiopods, Trace fossils.

Spot 12 K:- At this spot which is 30 km from spot 11 towards Khetu, transitional passage of B member into C member can be examined. The fossiliferous shale gradually losses its prominence towards the upper part and quartz arenite becomes

dominant. Thus dominantly earthy white to yellow bleached quartz arenite constitute the C member. Mud cracks are well developed in this part.

Spot no 13:- About 75 m from Dhaulgiri towards Khetu silicified algal limestone D member can be examined. A sequence of siltstone; quartz arenite and silicified algal limestone D member is exposed near the foot track leading to Gopichand ka temple, near village Dhaulgiri.

The quartz arenite overline the D member upto the Gopichand ka mahal constitute the top most unit E member of Dhaulgiri, which in term is unconformable overline by dark grey massive shale limestone.

Spot no. 14:- About one and half kilometer from village Khetu on the saddle, NNE of Gopichand Ka Mahal, shell limestone belonging to marine transgression can studied. Dark grey massive limestone (Nilkhanth Formation) with abundant broken shell of Cretaceous age unconformable overlies the E member of Dhaulgiri Formation.

Adjacent to spot 14 the shell limestone passes upward into olive green to variegated shale, which are splintery in nature (Subathu Formation). A laterite horizon is prominently developed between the two. Elsewhere, Nummulites are reported from this sequence.

References/ Bibliogrphy:

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- Fundamental of Historical Geology & Stratigraphy of India By R. Kumar.

Date: 11/10/2023

To,
The Principal,
Shri Shivaji College of Arts, Commerce and Science,
Akola.

Subject: Request to grant permission for M.Sc. Geo-informatics study tour to Deharadun and Mussoorie syncline .

Respected Sir,

With respect to above subject, Department of Geology and Geo-informatics wish to organize a study tour for students of M.Sc. Geo-informatics to Deharadun and Mussoorie syncline and its neighboring sites to carry out geological, Geographical survey, field mapping & sample collection. This study tour also includes visit well known national laboratories like IIRS- ISRO, WIHG (Wadia Institute of Himalayan Geology), FRI (Forest Research Institute), SOI (Survey of India) etc The field work is an essential component for M.Sc. Geo-informatics students as this topic is included in practical examination & separate marks are allotted for tour report & sample collection. The study tour will be organized from 16th – 24th Jan 2024. The list of students is enclosed with this letter and they are accompanied by three staff members. So please grant permission for study tour in and around Deharadun area of Uttarakhand State.

Thanking you,

Yours Faithfully,

Head
Department of Geology
Shri Shivaji College of Arts
Commerce & Science, Akola

SHRI SHIVAJI COLLEGE OF ARTS, COMMERCE & SCIENCE, AKOLA
DEPARTMENT OF GEOLOGY & GEOINFORMATICS

Study Tour to Deharadun

Student List

Sr. No.	Name of the Students
1.	Minal Vinayak Vairale
2.	Minal Sanjay Supe
3.	Rashmi Arun Chandurkar
4.	Mayuri Prabhakar Nage
5.	Nikita Pawan Jadhav
6.	Sakshi Gopal Badmera
7.	Archana Giridhar Gole
8.	Bharati Narayan Mahalle
9.	Manasi Deepak Kulkarni
10.	Nikita Datta Shewalkar
11.	Samruddhi Gajanan Solanke
12.	Sejal Vinayak Ingle
13.	Vaishnavi Sanjay Rane
14.	Vaishnavi Satishrao Chatar
15.	Ambarish Dnyaneshwar Jalamkar
16.	Bhavin Kailas Lakhe
17.	Chinmay Devidas Parkhi
18.	Mohanish Vasudeo Randive
19.	Pavan Sanjay Ingle
20.	Shreyash Santosh Bramhankar
21.	Zaid Imran Ahemad
22.	Abhijit Vinayak Ingle
23.	Ram Nandolkar
24.	Rushikesh Kolhe
25.	Ganesh Gawande
26.	Mayur Bajar
27.	Piyush Chakranarayan
28.	Shrikant Tulasakar

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Shri Shivaji Education Society, Amravati

Shri. Shivaji College of Arts, Commerce & Science, Akola

A Report On, Geological Study Tour

Date of Tour: 09/03/2024

To

"Salbardi and Morshi Area Amravati, Maharashtra"

Submitted by,

Department of Geology

Tour In-charge:

Mr. P. M. Giri Sir
(Asst. Prof.)
Geology & Geoinformatics

Dr. G. D. Gaikwad Sir
HOD
Geology & Geoinformatics

INDEX

1. Introduction

The Salbardi area was chosen for this field study due to its excellent exposure of lithological and structural features, making it an ideal site for geological research. The area contains a diverse range of rock types, including igneous, metamorphic, and sedimentary, providing a broad perspective on geological processes. Furthermore, various geological structures such as folds, faults, joints, and dykes are clearly visible, offering valuable insights into the region's tectonic history.

Location

The Salbardi region is located along the border of Maharashtra and Madhya Pradesh. It lies within the Morshi taluka of the Amravati district in Maharashtra, with part of it extending into the Betul district of Madhya Pradesh. Geographically, the area is positioned between latitudes 21°28'N and 21°24'N, and longitude 78°05'E. It is represented on the Survey of India topographic sheet number 55K/3, which provides a detailed map of the region's terrain and geological features.

Historical and Cultural Importance:

The Salbardi area holds significant historical and cultural value due to its rich heritage and longstanding connection to local communities. Historically, the region has been a site of interest for various ancient civilizations and local rulers, contributing to its archaeological significance. It has also been a key location for traditional agricultural practices, influencing the culture and lifestyle of the people in the area.

The presence of unique geological features has not only shaped the natural landscape but has also impacted the cultural practices and myths of the local population. The area is known for its historical landmarks, religious sites, and traditional festivals, which play a central role in the social life of the communities residing in the region.

2. Geological Setting

The Salbardi area is part of the Satpuda Basin and is characterized by hill ranges that generally trend from ENE to WSW. The hillocks in the region are primarily flat-topped and composed of Deccan Trap formations. The highest point in the area reaches an elevation of 606 meters, while the lowest point is at 357 meters.

The current topography of the region has been shaped by denudation and diastrophism, which are influenced by various geomorphic processes, stages of geomorphic evolution, and the structural characteristics of the underlying rocks. The area is tectonically active, with a major fault running in a NE-SW direction, which divides two distinct geological foundations. To the north of the fault, Gondwana sandstones are exposed, while the southern part is covered by Deccan Trap rocks.

The oldest rock formations in the area are from the Precambrian era, specifically Proterozoic gneiss. These rocks are exposed on both sides of the Maru River valley and extend gradually towards the northeast. The gneiss is typically reddish-pink to white in color and features alternating bands of quartz and feldspar, displaying a gneissose structure. It is composed of minerals such as microcline, plagioclase feldspar, and quartz. This feldspathic gneiss is unconformably overlain by sandstone from the Gondwana Supergroup. The Gondwana sandstones in the area vary in color, with yellow, red, and white varieties. The sandstone beds exhibit features such as cross-bedding, current bedding, ripple marks, and nodules and concretions, especially on the northern side of the Salbardi fault.

Drainage

The Maru River, a tributary of the Wardha River, flows in a north-to-southeast direction through the area. In the region's highly fractured hills, the drainage pattern is primarily influenced by the fissures in the hard Deccan Trap terrain. The drainage system in this area follows a dendritic pattern.

Fig1: Malu river flows in the deccan trap terrain.

3. Stratigraphy of the Area

1) Archaean Rocks

Stratigraphically, the basement of the Salbardi area is composed of quartz-feldspathic gneiss of Archaean age. This formation is exposed along the northern boundary of Amravati district. The Archaean rocks in the region have been studied for their lithological characteristics, petrography, and diagenetic processes. The quartz-feldspathic gneiss, which forms the foundational layer, is unconformably overlain by the Gondwana sediments, with a distinct and sharp boundary between the two rock types.

2) Gondwana Supergroup

The Gondwana succession in the Salbardi area is primarily represented by medium to coarse-grained sandstone, with subordinate clay and pebbly layers, forming a total thickness of 128 meters. The sandstone exhibits a range of colors, from whitish to yellowish-brown, and is compact in texture. The brownish and yellowish hues of the sandstone are attributed to the presence of ferruginous cement, which gives the rock its relatively hard and compact nature.

The quartz grains in the sandstone are mostly angular to sub-angular in shape. The upper Gondwana sediments are predominantly composed of yellow, yellowish-brown, and medium to coarse-grained sandstones, which are often parallel-bedded or cross-bedded. Siltstones and clay beds are also present and contain fossils and leaf impressions. The upper portion of the sequence is characterized by a pebbly horizon. Overall, the beds dip towards the north at angles ranging from 10° to 15°. The Lameta formation unconformably rests on the Gondwana sediments, separated by a disconformable boundary.

3)Lameta Formation

The Lameta Formation gets its name from the Lameta Ghat near Jabalpur. In the Salbardi area, it is exposed near the village of Ghorpend, located on the north-western side of the region. The Lameta Formation consists of a conformable series of sedimentary rocks, including cherty siliceous limestone, clay, and sandstone. The middle part of the succession is primarily composed of arenaceous (sand-rich) and argillaceous (clay-rich) sediments, while the upper part is predominantly calcareous.

The argillaceous units are characterized by reddish, brownish, and greenish clays, while the arenaceous sediments include massive sandstones, green sandstones, yellowish and grayish-brown sandstones, as well as coarse-grained and bioturbated sandstones. The formation is mainly made up of nodular and chertified limestones, with occurrences of light gray micritic limestone and light brown nodular and chertified limestone in the Salbardi area. These sediments are dated to the early Cretaceous period based on the presence of gymnosperm and pteridophytic fossils, and dinosaur bones and eggs have also been reported from this region.

The Lameta sediments unconformably overlie the Gondwana rocks and are mainly represented by a combination of argillaceous and calcareous marl sediments.

4) Deccan Trap

The Deccan Trap unconformably overlies the Lameta Formation and is widely exposed in the region. It primarily consists of fine-grained, massive to vesicular basalt, which forms plateaus and isolated hills. These basaltic formations are covered by alluvial soils from the Quaternary to recent periods.

The Deccan Trap above the Lameta beds is mainly composed of melanocratic, massive, fine-grained basalt. In some areas, amygdaloidal structures, occasionally filled with secondary minerals, are also present. The uppermost layers are composed of alluvium and soil, which are typically deposited in depressions and low-lying regions. The older rocks, which lie beneath the Deccan Trap, are exposed along a fault uplift, specifically the Salbardi fault, which trends east-west.

4. Equipment's

The Equipment's that are used during the geological field work are as follows:

- Brunton Compass
- Hammer
- GPS
- Lens
- Camera
- Google map
- Topographic map
- Field Notebook
- Marker pen

5. Structures

Tectonic Structures

I) Fault

In the northern part of the Salbardi region, a fault is present, forming a horst structure where older rocks have been uplifted between two parallel normal faults. This Salbardi Fault divides the area into two distinct geomorphic provinces: the northern zone, characterized by sediment generation and transport with minimal deposition, and the southern zone, where sediment deposition dominates, separated by a fault scarp.

The northern zone features deeply dissected terrain with a dendritic drainage pattern of high density, short interfluves, and deeply incised valleys. Typical slope profiles across streams exhibit cliffs transitioning into debris slopes.

The Salbardi Fault scarp acts as the boundary between the northern and southern geomorphic zones, with heights ranging from 240 meters to 10 meters. Evidence of neotectonic activity includes displaced, tilted rocky terraces within the fault zone, multiple nick points along the Maru River, and an alluvial fan originating at the fault zone apex. The region's tectonic activity is influenced by the Gawilghad/Salbardi/Elicpur fault and fold systems. These tectonic features form small ridges and valley-like depressions in the surrounding areas, creating natural water retention structures.

II) Mud cracks

The mud cracks in Salbardi, Maharashtra, are geological features formed by the drying and contraction of wet sediment, often found in ancient lakebeds or floodplains. They indicate past climatic changes, such as alternating wet and dry periods, and provide insights into the region's geological and environmental history.

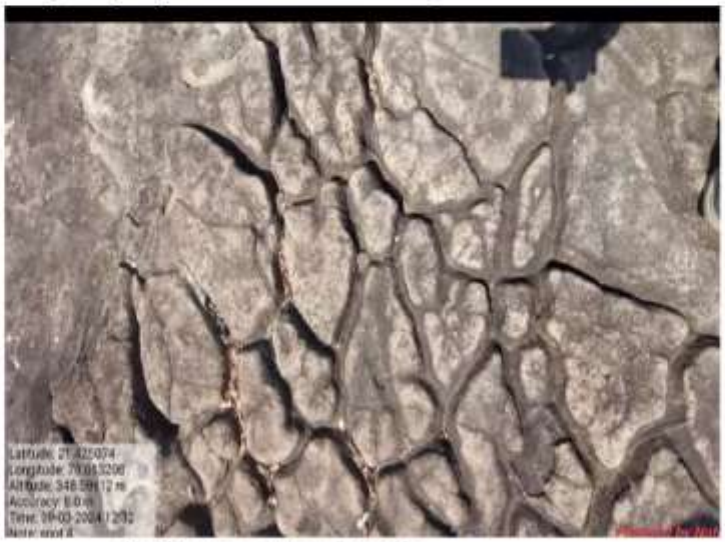

Fig2: shown mudcracks formation.

III) Conglomerate rock structure

The conglomerate rocks in Salbardi, Maharashtra, are sedimentary rocks composed of rounded pebbles and gravel cemented together by finer materials like sand or clay. These rocks indicate ancient river or stream activity, where sediments were transported, deposited, and compacted over time. Their presence highlights Salbardi's geological history of water flow and erosion.

Fig3: Shown pebbles and gravels cemented by finer material.

IV) Columnar Joints

Columnar joints, also known as prismatic joints, divide the rock mass into polygonal blocks, typically bounded by 5 to 6 sides. These structures are formed as a result of the cooling and contraction of magma.

Fig4: Appearing columnar joints into polygonal block.

Non-Tectonic and Other Structures

I) Potholes

Potholes are bowl-shaped depressions or holes formed in rocky streambeds, typically created during river or stream floods by localized abrasion. These features commonly develop in softer bedrock due to the turbulent action of water or eddy currents. Their size can vary significantly, ranging from a few centimeters to several meters. Potholes are prominently visible in the groundwater sandstone along the Maru River.

Fig5: Shown potholes in river side area.

II) Bedding

Bedding refers to the planar surfaces that separate layers of sedimentary rock, aligned parallel to the original surface of deposition. In sandstone, bedding planes are often distinguished by variations in color, grain size, and other characteristics.

6. Analysis and Interpretation

Rock Analysis

The Salbardi area features a diverse geological framework with rocks ranging from Archaean gneiss to Gondwana sandstone, accompanied by dolerite dykes and structural features like columnar joints. The composition of the dolerite dykes, including calcic plagioclase minerals such as anorthite and labradorite along with albite and olivine, indicates significant magmatic activity. The groundwater sandstone exhibits sedimentary features like bedding planes and potholes, suggesting active erosional and depositional processes in the past. The presence of Na-Cl-SO_4 type hot springs reflects unique hydrothermal activity influenced by the regional fault zones.

Geological History

The Salbardi region has undergone a complex geological evolution shaped by tectonic and magmatic processes. The Salbardi Fault played a pivotal role in dividing the area into zones of sediment generation and deposition. Evidence of neotectonic activity, such as fault scarps, displaced rocky terraces, and alluvial fans, highlights recent tectonic disturbances. Magmatic intrusions in the form of dolerite dykes cutting across Archaean and Gondwana formations indicate post-depositional tectonic events. Sedimentary features like bedding planes and potholes reveal a dynamic history of erosion and sediment deposition shaped by ancient river systems.

Economic and Environmental Significance

Economic Importance:

Geothermal Potential: The hot springs in the fault zone suggest potential for geothermal energy exploitation.

Construction Materials: Sandstone and dolerite may serve as valuable resources for construction and infrastructure development.

Groundwater Storage: Fault-induced depressions and sedimentary formations act as natural reservoirs, supporting groundwater availability.

Geotourism: Unique features such as columnar joints, hot springs, and the fault scarp could attract geotourists and researchers.

Environmental Significance:

Water Retention: Fault-induced valley depressions enhance water retention, benefiting local ecosystems and agricultural practices.

Climatic and Hydrological Insight: Erosional and depositional structures like potholes offer valuable information about historical climatic and hydrological conditions.

Sustainable Resource Management: Responsible exploitation of groundwater, minerals, and geothermal energy is essential to maintain ecological balance and prevent overuse of natural resources.

The geological complexity and resource potential of Salbardi make it a significant area for scientific study, resource development, and environmental management.

7. Summary

The Salbardi region is a geologically diverse area shaped by tectonic and non-tectonic processes. The Salbardi Fault, a major geological feature, has divided the area into two distinct zones—one dominated by sediment transport and erosion, and the other by sediment deposition. Key features include dolerite dykes, which represent magmatic activity, and hot springs, which indicate geothermal processes. Sedimentary features such as bedding planes and potholes provide evidence of past depositional and erosional activity. The presence of columnar joints further highlights the impact of magma cooling and contraction.

The geological history of the region is marked by tectonic disturbances, including neotectonic activity such as fault scarps, tilted terraces, and alluvial fans. These features suggest ongoing Earth movements. Additionally, the interaction of magma with surrounding rock has resulted in unique formations like the dolerite dykes and triple junctions. The sandstone formations and potholes reveal ancient river systems and climatic conditions that shaped the landscape over time.

Conclusion

The Salbardi region holds great significance due to its geological features, economic potential, and environmental importance. The hot springs offer a renewable source of geothermal energy, while sandstone and dolerite rocks can serve as valuable construction materials. Fault-induced valleys and cracks act as natural water reservoirs, supporting local ecosystems and agriculture. The region's unique features, such as columnar joints and hot springs, also make it an attractive destination for geotourism and research.

Overall, Salbardi is not only a window into Earth's dynamic history but also a resource-rich area with immense potential for sustainable development. Proper management of its natural resources is essential to ensure ecological balance and long-term benefits for the local population.

Date: 02.03.2024

To,
The Principal,
Shri Shivaji College of Arts, Commerce & Science,
Akola.

Subject: Request to grant permission for one day study tour of B.Sc. Geology & M.Sc. Geoinformatics students to Salbardi area on dated 9th March 2024

Respected Sir,

The Department of Geology wish to organize an one day Geological study tour on dated 9th March 2024 for the B.Sc. Geology & M.Sc. Geoinformatics students to visit Salbardi and surrounding sites. This study tour will be carried out for geological survey and field mapping. The concern field survey topic is included in practical examination & separate marks are allotted for tour report & sample collection. These students will be accompanying by Dr. G.D. Gaikwad (Asst. Professor & Head), Mr. P.M. Giri (Asst. professor) & Ms. N.K.Sable.

So please grant permission for one day Geological study tour of B.Sc. Geology & M.Sc. Geoinformatics to Salbardi area.

Thanking you.

Yours Faithfully,

Mr. P. M. Giri
Tour Incharge

DR. G. D. GAIKWAD
Asst. Professor & Head
Dept. of Geology & Geoinformatics
Shri Shivaji College, AKOLA.

PRINCIPAL
Shri Shivaji College of Arts,
Commerce & Science Akola
A++ Grade CGPA 3.58 by NAAC

SHRI SHIVAJI COLLEGE OF ARTS, COMMERCE & SCIENCE, AKOLA
DEPARTMENT OF GEOLOGY & GEOINFORMATICS
Study Tour to Salbardi area of Maharshtra and Madhya Pradesh
Student List

Sr. No.	Name of the Students
1.	Dhanshri Prakash Sonawane
2.	Aishwarya Suhas Gawai
3.	Bhumika Motiram Kolhe
4.	Rutuja Anilrao Dahake
5.	Anu Mangesh Hendajkar
6.	Damini Machindra Arakharao
7.	Ishwari Shriram Salame
8.	Bhimabai Prabhu Awachar
9.	Riyaj Lukman Tadavi
10.	Harshdip Manik Ingle
11.	Aditi Anil Damodar
12.	Kirti Surendra Tulaskar
13.	Sanyog Surendra Yadav
14.	Sanika Chincholkar
15.	Rohini Rameshwar Wakte
16.	Rajnandani Sandip Wankhade
17.	Barira Mirza Iqbal Mirza
18.	Madiha Bushra Mohammad Javed Iqbal
19.	Chaitali Shrikrushna Deshmukh
20.	Namita Rajesh Shirsat
21.	Dipmala Balkrushna Wankhade
22.	Eshvari Vilas Jalamkar
23.	Komal Kiran Bhatkar
24.	Harsh Rajesh Bhosale
25.	Gayatri Narayan Jalamkar
26.	Gayatri Ananta Ghonge
27.	Abrar Hameed Sayyed
28.	Sahil Kailas Rathod
29.	Pragati Sunil Sarode
30.	Pratik Santosh Dhomble
31.	Tarun Sanjay Sonkamle
32.	Roshan Mahadev Sarode
33.	Bhavesh Lande
34.	Shrijit Gawarde
35.	Aditya Damodar

Head
Department of Geology
Shri Shivaji College of Arts
Commerce & Science Akola

Dr. A. S. Raut
IQAC CO-ordinator
Shri Shivaji College of Arts,
Commerce & Science AKOLA
A++ Grade CGPA 3.58 by NAAC

PRINCIPAL
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Commerce & Science Akola.
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A Report

On

World Breast Feeding Week

2023

Department of Home science

Shri Shivaji College of Arts, Commerce & Science, Akola.

Breast feeding gives all human beings the opportunity to have a fair start in life.

1st August to 7th August every year is celebrated around the world as Breast Feeding Week to encourage breast feeding and improve the health of babies around the world.

Importance of breast feeding:

Mother's breast milk helps keep the baby healthy. It supplies all the essential nutrients in the proportions. It protects against diseases, like diabetes and cancer. It is easily digested – no constipation, diarrhoea or upset stomach in baby.

Advantages of Mother's milk:

1) Higher content of ascorbic acid and iron.
2) Higher content of polyunsaturated fatty acids.
3) Higher content of cystine in proteins..
4) Low mineral content and low buffering capacity.
5) Less load on the kidney.

The Department of Home Science, Shri Shivaji College of Arts, Commerce & Science, Akola celebrates the Breast Feeding week every year to spread awareness about breast feeding and its importance for child's and mother's health.

Here is a report of the celebration.


Shot on OnePlus

Inauguration of World Breastfeeding Week

Day 2

Quiz Competition on Breastfeeding

Knowledge Test on Breastfeeding / Home Science Competitive Exam Practice Paper- 35

Shri Shivaji College of Arts, Commerce and Science Akola

Department of Home Science organization Knowledge Test on Breastfeeding

*Each Question Carries Equal Mark

*Link will Only be Open For One Hour

*Certificate will not be issued

*Prizes will be given to the first three winners.

Home Science Competitive Exam Practice Paper- 34

* Indicates required question

1.Email

2.Name of the Student/ Participant

3.Class/ Designation

4.City

* 1. _____Milk is the ideal milk for an infant.

Mark only one oval.

Mother Milk

Cow Milk

Buffalo Milk

Packet Milk

2. An infant grows rapidly in the ___ of his life.

Mark only one oval.

First Year

Second Year

Third Year

Fifth Year

Immunoglobulin

Carbohydrate

Lipids

All of these

8. Breastfeed baby reduce the risk of____

Mark only one oval.

Diarrhea

Allergies

Inflections

All of these

9. Breastfeeding is not recommended for mother who have _____

Mark only one oval.

HIV

Hepatitis

Diabetes

All of these

10. There are_____stages of lactations.

Mark only one oval.

Four Stages

Three Stages

Two stages

None of these

11.Breast milk is secreted by the____ glands.

Mark only one oval.

Mammary glands

Thyroid glands

Pancreatic glands

None of these

12. Ascorbic acid is present only in____

Mark only one oval.

Formula milk

Cow milk

Mother's Milk

All of these

13. ____vaccine is the first immunization for baby after brith.

Mark only one oval.

BCG/OPV/Hep-B

Hepatitis-A

Both A and B

None of these

14. Besides protecting your child against disease, what is another advantage of breastfeeding?

Mark only one oval.

Breastmilk is easier to digest than formula

Breastmilk doesn't need to be prepared

Breastmilk is free and readily available

All of these

15. The calories requirement of the lactating mother is_____

Mark only one oval.

2,000+500kcal

2,000+100kcal

330-400kcal

None of these

16. When the weight of the baby is double than the birth weight after six months this is the indication of ____

Mark only one oval.

Over weight

Normal growth

12. Ascorbic acid is present only in____

Mark only one oval.

Formula milk

Cow milk

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All of these

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330-400kcal

None of these

16. When the weight of the baby is double than the birth weight after six months this is the indication of ____

Mark only one oval.

Over weight

Normal growth

Under weight

None of these

17. Introduction of weaning food should be started from the ------ month

Mark only one oval.

Six Months

Nine Months

After the erection of teeth

None of these

18. Weaning food should be introduced initially with the consistency___

Mark only one oval.

Solid

Semi-solid

Liquid

All of these

19. Which practice should be avoided during lactating_____

Mark only one oval.

Alcohol/smoking

Consuming Tea

Consuming Milk

All of these

20. ____vaccine is given to baby after two months from brith.

Mark only one oval.

DTaP

IPV

Hep-B

All of these

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Google Forms

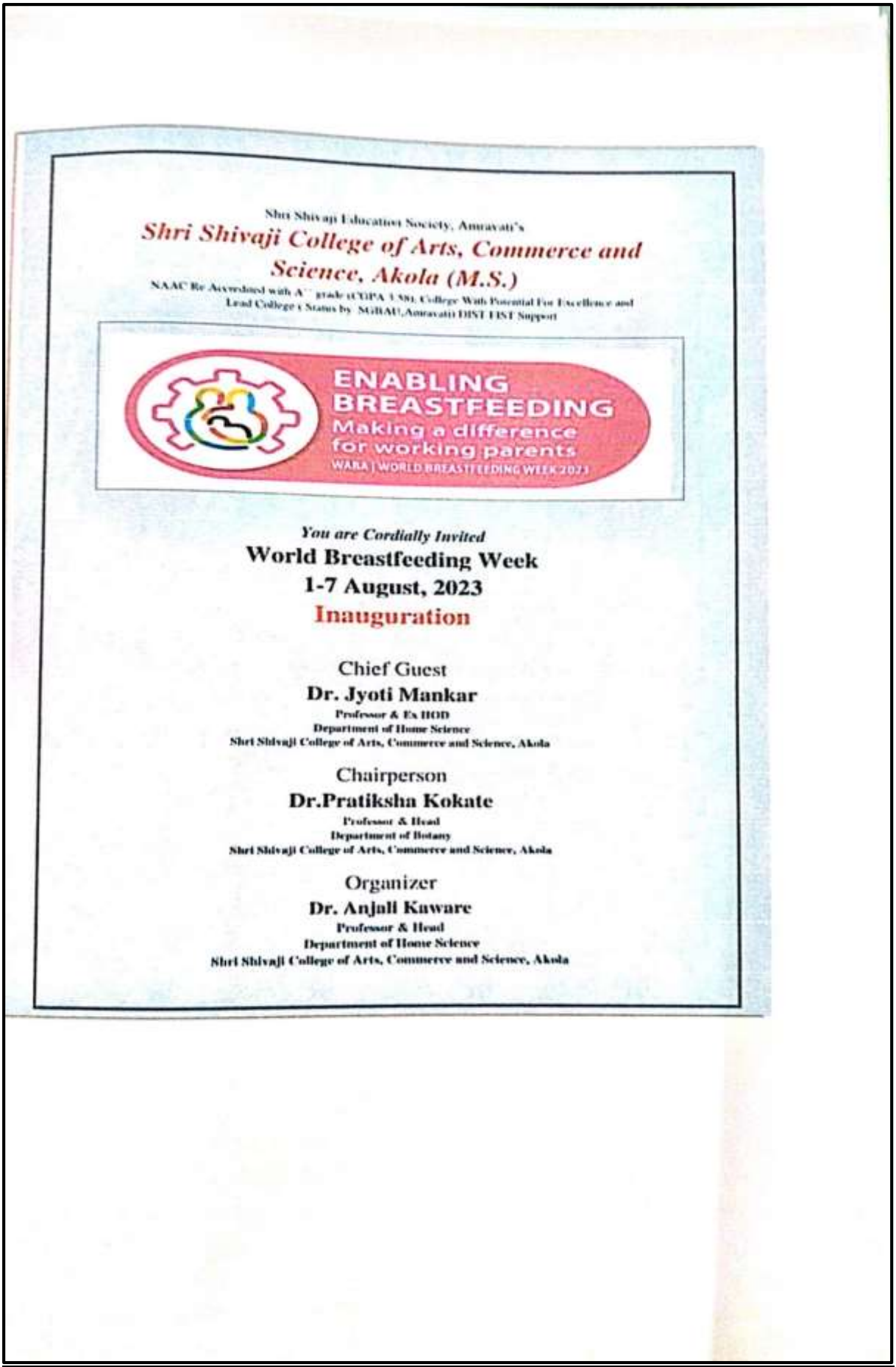
Day 3 - Awareness through Power Point Presentation on Benefits of Nutrient &Non Nutrient Components for Adulthood

PPt Present by Ms. Pranta Rathod

Day 4 - Guest Lecture on Importance & career opportunity in Home Science Diet During Pregnancy & Lactation

Guest lecture on Importance & career opportunity in Home Science
Diet During Pregnancy & Lactation by Mrs. Krutika Gangde

Day 5 - Demonstration of the Calcium Rich Recipes



Shri Shivaji Education Society, Amravati's

Shri Shivaji College of Arts, Commerce and Science, Akola (M.S.)

NAAC Re Accredited with A'' grade (CGPA 3.58), College With Potential For Excellence and Lead College Status by SGBAU,Amravati DBT DST Support

ENABLING BREASTFEEDING
Making a difference for working parents
WABA | WORLD BREASTFEEDING WEEK 2023

You are Cordially Invited

World Breastfeeding Week

1-7 August, 2023

Inauguration

Chief Guest

Dr. Jyoti Mankar

Professor & Ex HOD
Department of Home Science
Shri Shivaji College of Arts, Commerce and Science, Akola

Chairperson

Dr.Pratiksha Kokate

Professor & Head
Department of Botany
Shri Shivaji College of Arts, Commerce and Science, Akola

Organizer

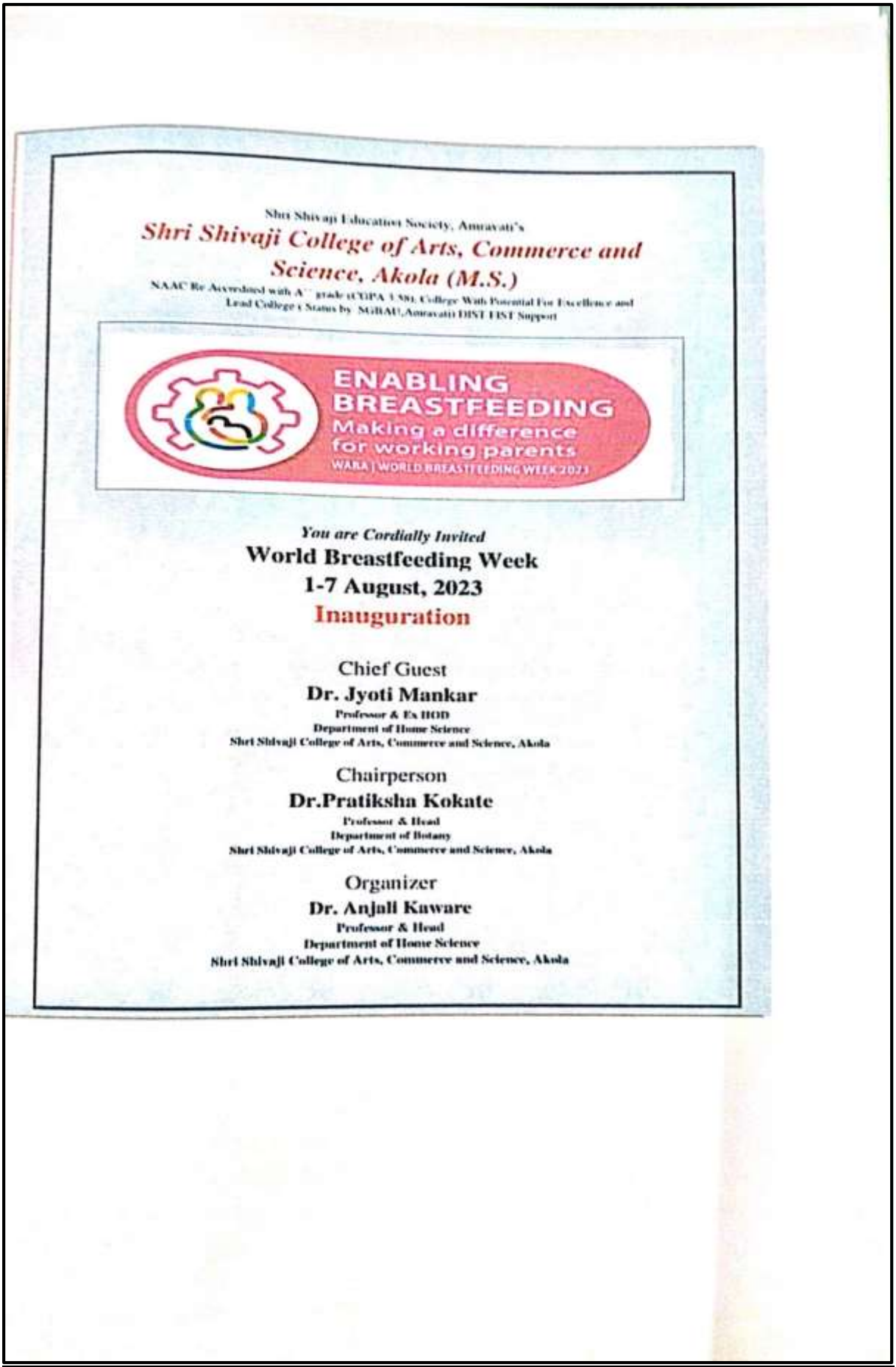
Dr. Anjali Kaware

Professor & Head
Department of Home Science
Shri Shivaji College of Arts, Commerce and Science, Akola

Program Schedule

Sr. No.	Date	Events	Time	Resource Person/ In charge
1.	1-8-2023	• Inauguration of WBW • Felicitation of UG & PG Topper	2to3 PM	Dr. Anjali Kaware Dr. Jyoti Mankar Dr. Pratiksha Kokate In charge- M.Sc. FN II yr Students
2.	2-8-203	• Quiz Competition on Breastfeeding	2 to3 PM	Mrs. Anjali Suryawanshi
3.	3-8-2023	• Benefits of Nutrient & Non Nutrient Components for Adulthood	2 to3 PM	Ms. Pranita Rathod
4.	4-8-2023	• Importance & career opportunity in Home Science • Diet During Pregnancy & Lactation	2 to3 PM	Mrs. Krutika Gangde Subject Matter Specialist (SMS) Krishi vigyan Kendra, Buldhana
5.	5-8-2023	• Demonstration of the Calcium Rich Recipes	2 to3 PM	Mrs. Anjali Suryawanshi Ms. Pranita Rathod
6.	7-8-2023	• Valedictory function of WBFW • Feedback Form	2 to3 PM	Mr. Rajkumar Jivtani Dr. Anjali Kaware Ms. Pranita Rathod

Venue – Department of Home Science



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Venue – Department of Home Science

Shri Shivaji Education Society, Amravati's

Shri Shivaji College of Arts, Commerce and Science, Akola (M.S.)

NAAC Re Accredited with A^{++} grade (CGPA 3.58), College With Potential For Excellence and Lead College (Status by SGBAU,Amravati) DIST FIST Support

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A Report

on

National Handloom Day

2023

Department of Home science

Shri Shivaji College of Arts, Commerce & Science, Akola

National Handloom Day

Every yearAugust is observed as the National Handloom Day to commemorate the Swadeshi Movement which was launched on this day in 1905 in the Calcutta Town Hall to protest against partition of Bengal by the British Government. The movement had aimed at reviving domestic products and production processes. The day was first observed in the year 2015 by the central government. Prime Minister Narendra Modi celebrated the first National Handloom Day in Tamil Nadu's Chennai city .

National Handloom Day seeks to highlight the contribution of handloom to the socioeconomic development of the country and increase income of the weavers.

Objectives:

1. To honour the handloom weavers.
2. To promote the handloom industry.
3. To contribute to the socioeconomic development of the country.
4. To glorify the Indian culture.


HOO
LAND
WEAR HANDLOOM
SAVE NATION


HANDLOOM
HANDLOOM DAY

Report

on

National Nutrition Week

2023

Department of Home science

Shri Shivaji College of Arts, Commerce & Science, Akola

National Nutrition Week 2023

National Nutrition Week 2023 was celebrated by the Department of Home Science from 1st September to 7th September to create awareness about health and wellbeing.
The campaign was first started by central government in the year 1992.
The objective of National nutrition week is to enhance the nutritional practices and Create awareness among people of the community through various programme and campaign to make a healthy nation.

The theme of year 2023 was "Healthy Diet Going Affordable for All"

Shri Shivaji College of Arts, Commerce and Science, Akola

National Service Scheme (2023-24)

List of Enrolled Students

Special Camp- Grampanchayat Sonala Tq- Dist Akola

Dated 01- 08 March 2024

Sr. No.	Enrollment No.	Full Name of the student:	Gender	Class	Faculty	Category
1	MH-03-205-2023-001	PRIYA VISHAWNATH CHANDURKAR	Female	First Year	Commerce	OBC
2	MH-03-205-2023-002	APEKSHA HARIDAS GAWANDE	Female	First Year	Arts	VJ/NT
3	MH-03-205-2023-003	SWARALI RAM SONTAKKE	Female	Second Year	Science	OBC
4	MH-03-205-2023-004	PRITI GANESH SARDAR	Female	First Year	Commerce	SC
5	MH-03-205-2023-005	SHEJAL RAVINDRA NARE	Female	Second Year	Science	OBC
6	MH-03-205-2023-006	SHIVANI VITTHAL TALE	Female	First Year	Science	OBC
7	MH-03-205-2023-007	APURVA ANKOSH RATHOD	Female	First Year	Science	VJ/NT
8	MH-03-205-2023-008	TANVI RAVINDRA WANARE	Female	First Year	Science	SC
9	MH-03-205-2023-009	SANCHITA KIRTIRAJ CHAVHAN	Female	First Year	Arts	SC
10	MH-03-205-2023-010	NARMADA CHHAGANLAL RATHOD	Female	First Year	Science	VJ/NT
11	MH-03-205-2023-011	VAISHALI SANJAY JADHAV	Female	Second Year	Arts	SC

12	MH-03-205-2023-012	VAISHALI LAXMAN SHIRSAT	Female	First Year	Commerce	SC
13	MH-03-205-2023-013	MAYURI SANTOSH WANKHADE	Female	First Year	Arts	SC
14	MH-03-205-2023-014	SAKSHI VINOD TAYDE	Female	First Year	Arts	SC
15	MH-03-205-2023-015	NAYANA PRAKASH KASOKAR	Female	First Year	Science	SBC
16	MH-03-205-2023-016	JAYA JOGENDRA TAYADE	Female	First Year	Home Science	SC
17	MH-03-205-2023-017	DIPALI BABANRAO DESHMUKH.	Female	First Year	Science	OPEN
18	MH-03-205-2023-018	DIPALI DINESH HIWARE	Female	First Year	Arts	OBC
19	MH-03-205-2023-019	VAISHNAVI NANDKISHOR BORDE	Female	First Year	Arts	OBC
20	MH-03-205-2023-020	PRATIKSHA SANTOSH INGLE	Female	First Year	Science	SC
21	MH-03-205-2023-021	DAMINI DILIP ANGAITKAR	Female	First Year	Commerce	OBC
22	MH-03-205-2023-022	SHRAVANI SANTOSH WANKHADE	Female	First Year	Science	OBC
23	MH-03-205-2023-023	ADITI ANIL DAMODAR	Female	First Year	Science	SC
24	MH-03-205-2023-024	PAYAL ANKOSH CHAVHAN	Female	First Year	Arts	VJ/NT
25	MH-03-205-2023-025	KRUSHNAVALI ANANTA NANOTE	Female	First Year	Science	OBC
26	MH-03-205-2023-026	GAYATRI PRADIP BHONDE	Female	Second Year	Science	OBC
27	MH-03-205-2023-027	KARAN SHARAD FOKMARE	Male	Second Year	Science	OBC
28	MH-03-205-2023-028	DIKSHA NILKANTH SARODE	Female	First Year	Commerce	OBC
29	MH-03-205-2023-029	KALYANI DATTA NANOTE	Female	First Year	Science	OBC
30	MH-03-205-2023-030	VAISHALI SUNIL WANKHADE	Female	First Year	Science	SC
31	MH-03-205-2023-031	ADITI SANJAY NIMBALKAR	Female	First Year	Arts	SC
32	MH-03-205-2023-032	SAKSHI SURESH BHANDE	Female	First Year	Science	SBC
33	MH-03-205-2023-033	PRATIKSHA GANESH MALOKAR	Female	First Year	Commerce	OBC
34	MH-03-205-2023-034	ASMITA RAJIV HIWRALE	Female	First Year	Science	SC
35	MH-03-205-2023-035	DHANASHRI GANESH RAJPUT	Female	First Year	Science	OPEN
36	MH-03-205-2023-036	DNYANESHWARI ARUN MENDHE	Female	Second Year	Science	OBC
37	MH-03-205-2023-037	DAMINI MACHINDRA ARAKHARAO	Female	First Year	Science	SC
38	MH-03-205-2023-038	ANUSHKA SANJAYRAO DANDALE	Female	First Year	Science	EWS
39	MH-03-205-2023-039	GAURI MAHADEVRAO UMBARKAR	Female	First Year	Science	OBC
40	MH-03-205-2023-040	DIPALI SHALIGRAM DANGE	Female	First Year	Commerce	SC
41	MH-03-205-2023-041	VAIBHAVI ANIL THOKADE	Female	First Year	Commerce	SBC
42	MH-03-205-2023-042	AISHWARYA SUHAS GAWAI	Female	First Year	Science	SC
43	MH-03-205-2023-043	PAYAL RUPRAO MODAK	Female	First Year	Science	OBC
44	MH-03-205-2023-044	BHIMABAI PRABHU AWACHAR	Female	First Year	Science	SC
45	MH-03-205-2023-045	NIKITA ARVIND RANE	Female	First Year	Science	SBC
46	MH-03-205-2023-046	SHREYA WANKHADE	Female	Second Year	Science	SC
47	MH-03-205-2023-047	AISHWARYA GANESH DHAGE	Female	First Year	Science	OBC
48	MH-03-205-2023-048	RAJESHWARI MUKUND SOLANKE	Female	Second Year	Science	EWS
49	MH-03-205-2023-049	RUTUJA ANILRAO DAHAKE	Female	First Year	Science	OBC
50	MH-03-205-2023-050	SAMIKSHA GOPAL WAGHMARE	Female	First Year	Science	ST
51	MH-03-205-2023-051	SONAL SANJAY JANOKAR	Female	First Year	Science	OBC
52	MH-03-205-2023-052	RANI DOIFODE	Female	First Year	Science	VJ/NT
53	MH-03-205-2023-053	SUKESHNI ASHOK MORGAONKAR	Female	First Year	Home Science	SC
54	MH-03-205-2023-054	GUNJAN VIVEK HIWARE	Female	First Year	Home Science	OBC
55	MH-03-205-2023-055	SHRADDHA SANTOSH PATIL	Female	First Year	Science	SC
56	MH-03-205-2023-056	GAYATRI JANRAO TAYADE	Female	Second Year	Science	OBC
57	MH-03-205-2023-057	SAKSHI VIJAY DONGARE	Female	First Year	Arts	SC
58	MH-03-205-2023-058	RUTUJA RAJENDRA MULE	Female	First Year	Arts	OPEN
59	MH-03-205-2023-059	ANITA BALKRUSHNA NAKAT	Female	First Year	Science	OBC

60	MH-03-205-2023-060	NIKITA ANANTA GAWANDE	Female	First Year	Arts	OBC
61	MH-03-205-2023-061	SONAL ULHAS SAWALE	Female	First Year	Science	SC
62	MH-03-205-2023-062	SAKSHI PRAMOD KHUPSE	Female	Second Year	Science	OBC
63	MH-03-205-2023-063	ANU MANGESH HENDAJKAR	Female	First Year	Science	OBC
64	MH-03-205-2023-064	ANUJA SANJAY KHAWANE	Female	First Year	Science	OBC
65	MH-03-205-2023-065	AISHWARYA ANIL DESHMUKH	Female	First Year	Science	OBC
66	MH-03-205-2023-066	PALLAVI MAHADEV PARASKAR	Female	First Year	Commerce	OBC
67	MH-03-205-2023-067	AMRUTA SURESH KHOJE	Female	First Year	Science	OBC
68	MH-03-205-2023-068	GAYATRI PANDURANG DONGARE	Female	Second Year	Science	OBC
69	MH-03-205-2023-069	PRANALI JAYKUMAR SHIRSAT	Female	First Year	Arts	SC
70	MH-03-205-2023-070	NEHA RAJESH TAYADE	Female	First Year	Arts	SC
71	MH-03-205-2023-071	PRAGATI SHESHRAO MALOKAR	Female	Second Year	Science	OBC
72	MH-03-205-2023-072	HARSHA SANTOSH DESHMUKH	Female	First Year	Arts	OBC
73	MH-03-205-2023-073	MANISHA DILIP DAMODAR	Female	Third Year	Science	SC
74	MH-03-205-2023-074	SHRAVANI DNYANESHWAR DHUMALE	Female	First Year	Commerce	OBC
75	MH-03-205-2023-075	SHREYA ANIL SABLE	Female	First Year	Commerce	OBC
76	MH-03-205-2023-076	ARPITA SANDIP MALI	Female	Second Year	Science	OBC
77	MH-03-205-2023-077	AARTI BHAGWAN MAHANKAR	Female	First Year	Arts	OBC
78	MH-03-205-2023-078	VAISHNAVI GAJANAN NAHATE	Female	Second Year	Science	OBC
79	MH-03-205-2023-079	SAKSHI DAMODHAR	Female	Second Year	Science	VJ/NT
80	MH-03-205-2023-080	TRUPTI SANTOSH GAWANDE	Female	First Year	Science	OBC
81	MH-03-205-2023-081	BHUMIKA ANIL DEVKAR	Female	First Year	Science	OBC
82	MH-03-205-2023-082	SAKSHI SHIVDAS BHATKAR	Female	First Year	Science	OBC
83	MH-03-205-2023-083	SAKSHI DHANANJAY ULHAMALE	Female	First Year	Science	OBC
84	MH-03-205-2023-084	MAHIMA DIGAMBAR GHUIKAR	Female	First Year	Science	OBC
85	MH-03-205-2023-085	VAISHNAVI SHESHRAO SABLE	Female	First Year	Science	OBC
86	MH-03-205-2023-086	RITU SANTOSH SANGLE	Female	First Year	Arts	VJ/NT
87	MH-03-205-2023-087	GAYATRI GANESH TOMPE	Female	First Year	Science	OBC
88	MH-03-205-2023-088	APURVA ANKOSH RATHOD	Female	First Year	Science	VJ/NT
89	MH-03-205-2023-089	GAYATRI PURNAJI KUTEMATE	Female	First Year	Commerce	OBC
90	MH-03-205-2023-090	SEJAL SUNIL MALI	Female	First Year	Science	OBC
91	MH-03-205-2023-091	KOMAL TEJRAO BHANDE	Female	First Year	Arts	SBC
92	MH-03-205-2023-092	VAISHNAVI SHANTARAM WAITKAR	Female	First Year	Commerce	VJ/NT
93	MH-03-205-2023-093	DIVYA ANIL SAKARKAR	Female	First Year	Arts	OBC
94	MH-03-205-2023-094	PRATRATRY PRABHAT PRAMANICK	Female	First Year	Science	NT
95	MH-03-205-2023-095	NIKITA ARVIND RANE	Female	First Year	Science	CatNA
96	MH-03-205-2023-096	NEHA PRAKASH TALE	Female	First Year	Science	OBC
97	MH-03-205-2023-097	DHANASHREE RAJESH MALGE	Female	First Year	Science	OBC
98	MH-03-205-2023-098	SAKSHI RAMESHWAR GHATE	Female	First Year	Science	NT
99	MH-03-205-2023-099	NAYANA PRAKASH KASOKAR	Female	First Year	Science	SBC
100	MH-03-205-2023-100	DIKSHA NILKANTH SARODE	Female	First Year	Science	OBC

श्री शिवाजी कला, वाणिज्य व विज्ञान महाविद्यालय, अकोला येथील राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांचा सात दिवसीय "विशेष सेवा संस्कार शिबिर" दत्तक ग्राम योजनेअंतर्गत ग्रामपंचायत सोनाळा तालुका जिल्हा अकोला येथे दिनांक 01 मार्च 2024 ते 08 मार्च 2024 या कालावधीमध्ये संपन्न करण्यात आला. ह्या विशेष सेवा संस्कार शिबिरामध्ये राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांकरीता विविध बौद्धिक सत्रे तथा श्रमदान कार्यक्रमाचे नियोजन करण्यात आले होते त्यामधून जवळपास **1400** पेक्षा अधिक वृक्ष लागवड करण्यात आली. या विशेष सेवा संस्कार शिबिराचा वार्षिक अहवाल खालील प्रमाणे दिलेला आहे.

सस्नेह निमंत्रण

श्री शिवाजी कला, वाणिज्य व विज्ञान महाविद्यालय, अकोला

राष्ट्रीय सेवा योजना

युवकांच्या ध्यास, ग्राम-शहर विकास

दिनांक 01 मार्च 2024

दिनांक 01 मार्च 2024 रोजी श्री शिवाजी कला वाणिज्य व विज्ञान महाविद्यालय, अकोला येथील राष्ट्रीय सेवा योजनेचे पथक महाविद्यालयातून विशेष सेवा संस्कार शिबिरा करिता रवाना होतांनाचे छायाचित्र.

दिनांक 01 मार्च 2024 रोजी राष्ट्रीय सेवा योजनेच्या सर्व विद्यार्थी कार्यक्रमाधिकारी प्रा. सचिन भुतेकर यांच्यासह ग्रामपंचायत सोनाळा येथे आगमन केले. गावातील ग्रामस्थ मंडळींशी विशेष सेवा संस्कार शिबिरा दरम्यान राबविण्यात येणाऱ्या विविध उपक्रमा संदर्भात संवाद व चर्चा करून नियोजन केले.

दिनांक 2 मार्च 2024

2 मार्च 2024 रोजी ग्रामपंचायत सोनाळा येथील सभा मंडपात विशेष सेवा संस्कार शिबिराच्या उद्घाटन सोहळ्याचे आयोजन करण्यात आले. ह्या कार्यक्रमाचे अध्यक्षस्थान महाविद्यालयाचे प्राचार्य डॉ. अंबादास कुलट यांनी भूषविले तथा कार्यक्रमाचे उद्घाटक म्हणून डॉ. एफ. सी रघुवंशी हे उपस्थित होते. या उद्घाटन सोहळ्यामध्ये मार्गदर्शक म्हणून लाभलेले वृक्ष क्रांतीचे जनक श्री. ए. एस. नाथन हे सुद्धा उपस्थित होते. प्राचार्य डॉ रामेश्वर भिसे प्रमुख अतिथी म्हणून उपस्थित होते तसेच डॉ. संजय शेंडे, डॉ.आशिष राऊत, कॅप्टन डॉ. आनंदा काळे, डॉ. एस. डी तराळे, श्री गोवर्धन होनाळे (अध्यक्ष मारुती संस्थान) , श्री महानाम फुलके (सरपंच ग्रामपंचायत सोनाळा), श्री सुरेश अंभोरे (ग्रामपंचायत सदस्य), प्राध्यापक शुभम राठोड, कु. वैष्णवी आसेकर (रासेयो विद्यार्थीनी प्रतिनिधी) सतीश अस्वार (रासेयो विद्यार्थी प्रतिनिधी) व्यासपीठावर उपस्थित होते तथा या कार्यक्रमाची प्रस्तावना कार्यक्रमाधिकारी प्रा. सचिन भुतेकर यांनी केली वं सूत्रसंचालन प्राध्यापिका मयुरी गुडदे तसेच आभार डॉ. मोनाली म्हसाळ यांनी मानले.

दिनांक 03 मार्च 2024

3 मार्च 2024 विशेष सेवा संस्कार शिबिराच्या तिसऱ्या दिवशी सकाळच्या सत्रात सर्व राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांना योगासने व प्राणायामाचे प्रशिक्षण व मार्गदर्शन देण्यात आले त्याकरिता श्री शिवाजी महाविद्यालय अकोला येथील संगणक शास्त्र विभागाच्या प्राध्यापिका अनिता दुबे या उपस्थित होत्या. राष्ट्रीय सेवा योजनेच्या सर्व विद्यार्थ्यांना योग प्राणायाम तसेच ध्यान साधनेचे फायदे यांचे मार्गदर्शन देण्यात आले.


योगासने व प्राणायाम झाल्यानंतर राष्ट्रीय सेवा योजनेच्या सर्व स्वयंसेवकांनी ग्रामपंचायत सोनाळा येथील परिसर स्वच्छ करून श्रमदानाला सुरुवात केली. रासेयोच्या विशेष शिबिरामध्ये प्रामुख्याने निमंत्रित केलेले वृक्ष क्रांतीचे जनक श्री ए एस नाथन यांच्या मार्गदर्शनात स्वस्तिक वृक्षारोपण प्रणाली करिता नियोजन करण्यात आले.


दिनांक 03 मार्च 2024 रोजी दुपारच्या बौद्धिक सत्रामध्ये शिक्षण महर्षी कृषिरत्न डॉ. पंजाबराव उपाख्य भाऊसाहेब देशमुख व कर्मयोगी गाडगेबाबा यांच्या जीवनावर प्रकाश टाकण्याकरिता बौद्धिक सत्र आयोजित केले होते. ह्या कार्यक्रमाचे अध्यक्षीय स्थान प्राध्यापक डॉ. विवेक हिवरे यांनी भूषविले तसेच उपरोक्त विषयावर प्रा. गजानन भारसाकळे ह्यांनी विद्यार्थ्यांना प्रदिर्घ मार्गदर्शन केले.


03 मार्च 2024 रोजी संध्याकाळी 4 वाजता राष्ट्रीय सेवा योजनेच्या सेवा संस्कार शिबिरामध्ये भारतीय प्रथा व परंपरे मागील विज्ञान या विषयावर प्राध्यापक डॉ. हरेश मालपाणी, श्री रा. ल.तो महाविद्यालय, अकोला यांचे मार्गदर्शन आयोजित केले होते या कार्यक्रमाचे अध्यक्षस्थान श्री गोवर्धन होनाळे यांनी भूषविले. भारतीय संस्कृतीचा विज्ञानाशी असलेला संबंध या व्याख्यानातुन विद्यार्थ्यांना समजावून घेणे शक्य झाले.



03 मार्च 2024 रोजी संध्याकाळी 07:00 वाजता श्री महादेवरावजी भुईभार, डॉ. संजय तिडके डॉ. गणेश गायकवाड, श्री गोवर्धनजी होनाळे, कार्यक्रमाधिकारी प्रा. सचिन भुतेकर, डॉ. मोनाली म्हसाळ व सोनाळा ग्रामस्थ मंडळी यांच्या यांच्या उपस्थितीत राष्ट्रीय सेवा योजनेच्या सर्व स्वयंसेवकांनी ग्रामपंचायत सोनाळा येथे "प्रबोधन दिंडी" चे आयोजन केले होते. प्रबोधन दिंडीचा समारोप करताना डॉ. संजय तिडके यांनी रासेयोच्या विद्यार्थ्यांना "अंधश्रद्धा निर्मूलन विचार व दिशा" या विषयावर सखोल मार्गदर्शन केले या कार्यक्रमाचे अध्यक्षस्थान श्री महादेवरावजी भुईभार यांनी भूषविले तद्वतच डॉ. गणेश गायकवाड यांनी आपली प्रमुख उपस्थिती दर्शविली.

दिनांक 04 मार्च 2024

दिनांक 4 मार्च 2024 रोजी विशेष सेवा संस्कार शिबिराच्या सकाळच्या श्रमदानाच्या वेळी राष्ट्रीय सेवा योजनेच्या सर्व विद्यार्थ्यांनी मिळून श्री ए एस नाथन यांच्या मार्गदर्शनात शास्त्रीय स्वस्तिक पद्धतीने घन वृक्ष लागवड केली. या वृक्ष लागवडीमध्ये जवळपास 1450 वृक्ष लागवड राष्ट्रीय सेवा योजनेचे सर्व स्वयंसेवक व ग्रामस्थ मंडळींच्या मदतीने गावातील ई क्लास नामांकित भूभागावर वृक्षारोपण करण्यात आले. या वृक्ष लागवडीसाठी अकोला जिल्ह्यातील वन विभागाच्या अंतर्गत येणाऱ्या शासकीय रोपवाटिकेमधून वेगवेगळे वृक्षांचे रोपटे हस्तगत करण्यात आले होते. या कार्यक्रमांमध्ये ग्रामपंचायत सोनाळा येथील सरपंच श्री महानाम फुलके व त्यांच्या सहकाऱ्यांनी अमूल्य असे सहकार्य केले.




04 मार्च 2024 च्या दुपारच्या सत्रात हृदयरोग प्राथमिक उपचार प्रात्यक्षिक कार्यशाळा आयोजित करण्यात आली होती. या कार्यक्रमांमध्ये डॉ. राजेंद्र सोनवणे, (प्रसिद्ध भूलतज्ञ, अकोला) हे प्रमुख मार्गदर्शक म्हणून उपस्थित होते तथा कार्यक्रमाचे अध्यक्ष पद हे डॉ. हेमंत सपकाळ यांनी भूषविले या कार्यक्रमादरम्यान डॉ. तुषार देशमुख प्राध्यापक पवन गिरी, प्राध्यापक जमीर शेख यांनी आपली उपस्थिती दर्शविले. या कार्यक्रमांमध्ये हृदयविकाराची लक्षणे, निदान व प्रथमोपचारासाठी आवश्यक असणाऱ्या सर्व बाबी राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांना प्रात्यक्षिक पद्धतीने समजावून सांगण्यात आल्या.




4 मार्च 2024 रोजी रासेयो सेवा संस्कार शिबिरामध्ये संध्याकाळच्या बौद्धिक सत्रामध्ये राष्ट्रपिता महात्मा गांधी यांच्या आयुष्यावर प्रकाश टाकण्यासाठी प्रसिद्ध युवा लेखक श्री चंद्रकांत झटाले यांना प्रमुख वक्ते व मार्गदर्शक म्हणून आमंत्रित करण्यात आले होते या कार्यक्रमांमध्ये प्राध्यापक डॉ. नाना वानखडे यांनी अध्यक्षस्थान भूषविले तथा प्राध्यापक डॉ. संजय पोहरे, प्राध्यापक डॉ. डी बी वानखडे, प्राध्यापक संतोष पास्तापुरे , श्री ए एस नाथन, कार्यक्रमाधिकारी प्राध्यापक सचिन भुतेकर, महिला कार्यक्रमाधिकारी प्राध्यापिका मयुरी गुडदे, प्राध्यापक शुभम राठोड उपस्थित होते. या व्याख्यानामध्ये श्री चंद्रकांत झटाले यांनी "मजबुती का नाम महात्मा गांधी" या शीर्षक अंतर्गत विद्यार्थ्यांना सखोल मार्गदर्शन केले.


4 मार्च 2024 रोजी संध्याकाळी 07 :00 वाजता राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांकरीता गीत संगीत कार्यक्रम आयोजित करण्यात आला होता या कार्यक्रमाकरिता श्री पंकज थोरात व मंडळी यांना प्राचार्य करण्यात आले होते. या गीत संगीत कार्यक्रमाकरिता डॉ. रूपाली काळे श्री गजाननराव होनाळे पोलीस पाटील सोनाळा ग्रामपंचायत यांनी प्रमुख उपस्थिती दर्शविले तथा प्राध्यापक डॉ. संतोष बदने, प्राध्यापक डॉ. मिलिंद बेलखेडकर प्राध्यापक डॉ. हेमंत सपकाळ प्राध्यापक, डॉ. गजानन बेलसरे यांनी राष्ट्रीय सेवा योजनेच्या विशेष शिबिरामध्ये येऊन सदिच्छा भेट दिली.

दिनांक 05 मार्च 2024

दिनांक 05 मार्च 2024 रोजी राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांनी हाती घेतलेल्या **शास्त्रीय स्वस्तिक पद्धतीने वृक्ष लागवड** या उपक्रमाला आपल्या श्रमदानाने पूर्णत्वाचे वळण प्राप्त करून दिले. या उपक्रमामध्ये वृक्ष क्रांतीचे जनक श्री ए एस नाथन यांचे अतुल्य मार्गदर्शन सर्व विद्यार्थ्यांना प्राप्त झाले व निसर्गाशी असलेला आपला संबंध ओळखण्यात विद्यार्थ्यांना मदत झाली. श्री एस नाथन यांच्या भारावलेल्या व्यक्तिमत्त्वाचा सहवास राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांना लाभला व त्यांच्याकडून सर्व विद्यार्थ्यांनी जीवनमूल्यांचे धडे गिरवले.


06 मार्च 2024 रोजी राष्ट्रीय सेवा योजनेच्या विशेष सेवा संस्कार शिबिरामध्ये सकाळच्या सत्रामध्ये सर्व स्वयंसेवकांनी योग योगासने व प्राणायाम चा सराव केला. या सकाळच्या सत्रासाठी प्राध्यापक शुभम राठोड यांनी विद्यार्थ्यांना मार्गदर्शन केले या कार्यक्रमाकरिता भौतिकशास्त्र विभागाच्या प्राध्यापिका डॉक्टर जयश्री भाले ह्या सुद्धा उपस्थित होत्या.

6 मार्च 2024 रोजी दुपारी दोन ते चार या कालावधीमध्ये राष्ट्रीय सेवा योजनेच्या विशेष सेवा संस्कार शिबिरामध्ये ग्रामपंचायत सोनाळा येथील सर्व ग्रामस्थांकरीता मोफत आरोग्य शिबिराचे आयोजन करण्यात आले होते त्याकरिता सर्व विद्यार्थ्यांनी गावामध्ये घरोघरी जाऊन या कार्यक्रमाचा प्रचार केला व गावकऱ्यांना या आरोग्य शिबिरामध्ये सहभागी होण्यासाठी आवाहन केले.

6 मार्च 2024 रोजी जिल्हा सामान्य रुग्णालय अकोला यांच्या सौजन्याने राष्ट्रीय सेवा योजनेच्या विशेष शिबिरामध्ये ग्रामपंचायत सोनाळा येथील ग्रामवासियांकरिता मोफत आरोग्य तपासणी शिबिर घेण्यात आले. या आरोग्य शिबिराच्या उद्घाटनाचे अध्यक्षस्थान प्राध्यापक रवी दाभाडे जीवरसायनशास्त्र विभाग श्री शिवाजी महाविद्यालय अकोला यांनी भूषविले या कार्यक्रमाकरिता प्राध्यापक डॉक्टर रणजीत भडांगे प्राध्यापक डॉक्टर संतोष चव्हाण प्राध्यापक नितीन देशमुख प्राध्यापक निखिल चौखंडे यांनी सदिच्छा भेट देऊन कार्यक्रमाची शोभा वाढवली. कार्यक्रमाचे प्रास्ताविक रासेयो कार्यक्रम अधिकारी प्राध्यापक सचिन भुतेकर यांनी केले व आभार प्राध्यापिका मयुरी गुडदे यांनी व्यक्त केले.

आरोग्य शिबिराच्या समारोपानंतर राष्ट्रीय सेवा योजनेच्या सर्व विद्यार्थ्यांकरीता व्यक्तिमत्व विकास या विषयावर प्राध्यापक डॉक्टर नितीन मोहोळ यांचे व्याख्यान आयोजित केले होते या कार्यक्रमाचे अध्यक्ष संगीत विभागाचे विभाग प्रमुख प्राध्यापक डॉ किशोर देशमुख हे होते.

या कार्यक्रमांमध्ये प्राध्यापक डॉक्टर हर्षवर्धन मानकर प्राध्यापक डॉक्टर सोपान व तारे प्राध्यापिका मयुरी गुडदे डॉक्टर मोनाली मिसाळ हे आवर्जून उपस्थित होते कार्यक्रमाचे प्रास्ताविक कार्यक्रमाधिकारी प्राध्यापक सचिन भुतेकर यांनी केले तथा आभार प्रदर्शन प्राध्यापक शुभम राठोड यांनी सादर केले.

7 मार्च 2024 रोजी राष्ट्रीय सेवा योजनेच्या विशेष शिबिरातील सकाळच्या सत्रामध्ये योगशास्त्र विभागाच्या प्राध्यापिका डॉ नलीनी ढोरे यांच्या मार्गदर्शनात नियमित व्यायाम योगासने ध्यानसाधनेचा सराव सर्व स्वयंसेवकांनी केला.

07 मार्च 2024 रोजी जागतिक महिला दिनाच्या निमित्ताने राष्ट्रीय सेवा योजनेच्या विशेष शिबिरामध्ये श्री शिवाजी महाविद्यालय अकोला येथील मराठी विभागाच्या डॉ. श्रद्धा थोरात यांनी "**महिला व अंधश्रद्धा**" या विषयावर विज्ञानवादी दृष्टिकोनातून अत्यंत सखोल मार्गदर्शन राष्ट्रीय सेवा योजनेच्या सर्व स्वयंसेवकांना केले. ह्या व्याख्यानामध्ये डॉ. श्रद्धा थोरात यांनी महिलांशी संबंधित असलेल्या सर्व अंधश्रद्धांवर विस्तृत विश्लेषण करून सर्व विद्यार्थ्यांना वैचारिक प्रबोधन केले. या कार्यक्रमाचा अध्यक्षीय पदभार लेफ्टनंट डॉ.अश्विनी बलोदे, विभाग प्रमुख जीवरसायन शास्त्र विभाग यांनी भूषविला तत्वतच या विशेष कार्यक्रमाकरिता डॉ. संगीता शेगोकार, डॉ. कपिला म्हैसणे, राष्ट्रीय सेवा योजनेच्या प्राध्यापिका मयुरी गुडदे डॉ. मोनाली म्हसाळ, प्राध्यापक रवी दाभाडे, श्री अजयजी मेढे, प्रामुख्याने उपस्थित होते. या कार्यक्रमाचे प्रस्तावना प्राध्यापक शुभम राठोड यांनी केली तथा कार्यक्रमाधिकारी प्राध्यापक सचिन भुतेकर यांनी या कार्यक्रमाचे आभार प्रदर्शन व्यक्त केले.

7 मार्च 2014 च्या संध्याकाळच्या सत्रामध्ये चार वाजता मुक्त शिक्षण या विषयावर एक विशेष बौद्धिक सत्र आयोजित केले होते. या कार्यक्रमांमध्ये श्री शिवाजी अकोला महाविद्यालयाचे यशवंतराव चव्हाण मुक्त विद्यापीठाचे महाविद्यालयीन प्रभारी कॅप्टन डॉ. आनंदा काळे मार्गदर्शक म्हणून उपस्थित होते तथा या कार्यक्रमाचे अध्यक्ष पद रसायनशास्त्र विभागाचे प्राध्यापक डॉ. गजानन डोंगरे यांनी भूषविले. या बौद्धिक सत्राची प्रस्तावना रासेयो कार्यक्रमाधिकारी प्राध्यापक सचिन भुतेकर यांनी केली तथा आभार प्राध्यापक शुभम राठोड यांनी मानले. या कार्यक्रमाला प्राध्यापिका मयुरी गुडदे, डॉ.मोनाली मासाळ ह्या उपस्थित होत्या.

मुक्त शिक्षण या विषयाच्या संदर्भात झालेल्या मार्गदर्शनानंतर सायंकाळी पाच वाजता राष्ट्रीय सेवा योजनेच्या विद्यार्थ्यांकरीता आपल्या आरोग्य आपल्या हाती या विषयावर राष्ट्रसंत तुकडोजी महाराज निसर्गोपचार केंद्र अकोला चे अध्यक्ष डॉ. गोवर्धन खवले यांनी विस्तृत मार्गदर्शन केले. यावेळी या कार्यक्रमाला प्रमुख उपस्थिती म्हणून श्री आकाश इंगळे हे उपस्थित होते. या कार्यक्रमाचे प्रस्तावना डॉ. मोनाली म्हसाळ यांनी केली तथा आभार प्राध्यापिका मयुरी गुडदे यांनी व्यक्त केले.

समारोप समारंभ

राष्ट्रीय सेवा योजनेच्या विशेष शिबिराचा समारोपीय कार्यक्रम दुपारी 02 वाजता आयोजित केला होता. या कार्यक्रमाचे अध्यक्ष श्री शिवाजी महाविद्यालय अकोला येथील प्राचार्य डॉ. अंबादास कुलट हे होते तथा प्रमुख मार्गदर्शक म्हणून श्री गणेश महाविद्यालय, कुंभारी येथील प्राचार्य डॉ. के. व्ही. मेहरे उपस्थित होते. समारोपीय कार्यक्रमामध्ये कॅप्टन डॉ. आनंदा काळे, श्री महानाम फुलके (सरपंच ग्रामपंचायत सोनाळा) श्री गोवर्धन होनाळे (अध्यक्ष श्री मारुती संस्थान, सोनाळा), सौभाग्यवती मालुआई होनाळे, श्री सुरेश अंभोरे (ग्रामपंचायत सदस्य सोनाळा), महिला कार्यक्रमाधिकारी प्राध्यापिका मयुरी गडदे सह कार्यक्रमाधिकारी डॉ. मोनाली म्हसाळ, कु. वैष्णवी आसेकर (विद्यार्थिनी प्रतिनिधी, रासेयो) सतीश अस्वार (विद्यार्थी प्रतिनिधी रासेयो) उपस्थित होते. समारोप या कार्यक्रमाचे प्रस्तावना कार्यक्रमाधिकारी प्राध्यापक सचिन भुतेकर यांनी केली तथा आभार प्रदर्शन प्राध्यापक शुभम राठोड यांनी व्यक्त केले. ह्या समारोपय कार्यक्रमांमध्ये सोनाळा ग्रामपंचायत रहिवासी श्री गोवर्धन होणारे व सौभाग्यवती मालूआई गोवर्धन होनाळे यांचा सत्कार राष्ट्रीय सेवा योजनेच्या सत्कार करण्यात आला. या सात दिवसीय विशेष शिबिरामध्ये होनाळे कुटुंबीय , श्री महानाम फुलके सरपंच ग्रामपंचायत सोनाळा यांचे अनन्वित सहकार्य लाभले.

SHRI. SHIVAJI COLLEGE OF ARTS, COMMERCE AND SCIENCE, AKOLA

EDUCATIONAL TOUR

DEPARTMENT OF GEOGRAPHY

DEPARTMENT OF HISTORY

'Murud-Janjira, Mahabaleshwar & Pachgani'

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Submitted By

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1

ऋणनिर्देषन

यावर्षी संत गाडगेबाबा अमरावती विद्यापीठाच्या बी.ए. भाग 3 भूगोल प्रात्यक्षिकाच्या अभ्यासक्रमाप्रमाणे आमची शैक्षणिक सहल अकोला-मुरुंड-जंजिरा-महाबळेश्वर-पाचगणी इ. ठिकाणी दि. ७ फेब्रुवारी २०२४ ते १३ फेब्रुवारी २०२४ अखेर जाऊन आली. या अभ्यास सहलीचे संयोजन व मार्गदर्षन मा. डॉ. एन. टी. वानखेडे,प्रा.डॉ. संतोष पस्तापुरे, प्रा. दीपक वाघमारे, प्रा.राधिका धोत्रे व प्रा.मिलींद भुजाडे यांनी केले. त्यांच्या भौगोलिक मार्गदर्शनामुळे आम्हाला सहलीचा आनंद घेता आला. त्यांच्या मार्गदर्शनाबद्दल मी त्यांचा / त्यांची ऋणी आहे.

आपल्या महाविद्यालयाचे मा. प्राचार्य डॉ. कुलट सर यांनी सहलीला परवानगी दिली व सहकार्य केले त्याबद्दल मी त्यांचा / त्यांची अत्यंत आभारी आहे. कार्यालयीन कर्मचारी व सेवक यांनीही सहकार्य केले त्याबद्दल त्यांचेही आभार.

विद्यार्थाची सही :

नाव

रोल. नं. परीक्षा नं. :

2

शैक्षणिक सहल अहवाल

अनुक्रमणिका

3

1) प्रस्तावना

अ) शैक्षणिक सहलीचा हेतू

भूगोलशास्त्रामध्ये सहलीला अनन्य साधारण महत्व आहे. सहलीमध्ये प्रवास मार्गातील नैसर्गिक व मानवी घटकांचे निरीक्षण केले जाते. विविध भौगोलिक घटक (मृदा, वनस्पती, भूपृष्ठरचना, नदीप्रणाली इ.) व सांस्कृतिक घटक (वसाहती, उद्योगधंदे, पेहराव, भाषाशैली इ.) यांचा अभ्यास अभ्यास सहलीमध्ये प्रत्यक्षरित्या करता येतो. विविध प्राकृतिक घटकांचा मानवी जीवनावर होणारा परिणाम व मानवाने निसर्गामध्ये घडवून आणलेला बदल यांच्या विषयीचे सखोल व प्रत्यक्ष ज्ञान अभ्यास सहलीमुळे प्राप्त होते. शैक्षणिक सहल ह वेगवेगळ्या प्रदेशाचे निरीक्षण करून भौगोलिक व सांस्कृतिक घटकांचा अभ्यास पुस्तकी माहितीपेक्षा प्रत्यक्ष अभ्यासातून चांगल्या पध्दतीने होऊ शकतो. शैक्षणिक सहलीमुळे व्यक्तिमत्त्वाचा विकास व नेतृत्व हे गुण अंगी बाळगले जातात. भूगोलशास्त्राचा अभ्यास पुस्तकातील माहिती व क्षेत्रीय अभ्यास अशा दोन प्रकारे केला जातो. शैक्षणिक सहल ही प्रत्यक्ष क्षेत्रीय अभ्यासाचा एक भाग आहे. पुस्तकात वाचून एखादया घटकाची माहिती घेण्यापेक्षा जर त्याचे प्रत्यक्ष निरीक्षण केले तर ती माहिती कायमस्वरूपी स्मरणात राहते. असे विविध उद्देश अभ्यास सहलीमुळे साध्य करण्याचा प्रयत्न केला जातो. व त्यापासून होणा-या विविध फायद्यामुळे शैक्षणिक सहलीला विशेष महत्व आहे.

ब) शैक्षणिक सहलीचा प्रवासमार्ग :

संत गाडगेबाबा अमरावती विद्यापीठाच्या अभ्यासक्रमानुसार बी.ए. भाग 3 या वर्गाची स्पेशल भूगोल विषयाची २०२३-२०२४ या शैक्षणिक वर्षातील विद्यार्थ्यांची अभ्यास सहल कोकण किनारपट्टीवरील मुरूड जंजीरा व दिवेआगर इ. ठिकाणी दि. ०७ फेब्रुवारी २०२४ ते १३ फेब्रुवारी २०२४ असोर जाऊन आली. प्रवासाची सुरूवात अकोल्यापासून झाली. प्रवासमार्ग **अकोला- औरंगाबाद-अहमदनर-पुणे-पाली-मुरुड जंजिरा-दिवेआगर-महाड-पोलादपूर-महाबळे श्वर-पाचगणी-वाई-अकोला** असा झाला व दि. १३ फेब्रुवारी २०२४ रोजी दुपारी ०३.०० वाजता आमची सहल अकोला पोहचली.

वरील प्रवासात विविध भौगोकिटष्ट्या महत्वाच्या स्थळांना भेटी दिल्या. त्या प्रदेशातील नैसार्गिक, सांस्कृतिक, ऐतिहासीक व अर्थिक घटकांचा पर्यावरणापेक्षा भिन्न असल्यामुळे तुलनात्मक अभ्यासाच्या दृष्टीने हा प्रदेश निवडण्यात आला.

2) सहल प्रदेशातील भौगोलिक माहिती.

अ) प्राकृतिक रचना (स्वाभाविक विभाग)

प्राकृतिक रचनेनुसार महाराष्ट्राचे तीन विभाग पडतात.

1) कोकण किनापट्टी 2) पश्चिम घाट 3) पठारी प्रदेश

अभ्यास सहलीसाठी निवडलेला भाग कोकण किनारपट्टी व पश्चिम घाट या स्वाभाविक विभागातील आहे.

1) कोकण किनारपट्टी :

सह्याद्री पर्वतरांगांच्या पश्चिमेस अरबी समुद्रापर्यंत उत्तर दक्षिण पसरलेल्या अरूंद विंचोळ्या भुप्रदेशाला कोकण म्हणतात. उत्तरेकडील दमन गंगा नदीपासून दक्षिणेस तेरेखोल खाडीपर्यंत सुमारे 720 कि.मी. लांबीचा व 40 ते 80 कि.मी. रुंदीचा कोकणचा प्रदेश येतो. कोकणचा प्रदेश सलग सपाट नाही.

कोकणाचे क्षेत्रफळ सुमारे 30,394 चौ. कि.मी. आहे हा भाग टेकड्या, उंचवटे व डोंगर द-यांनी व्यापलेला आहे. या कोकण किनापट्टीवरील **रायगड जिल्हयातील मुरूड जंजीरा दिवेआगर या ठिकाणांना आम्ही भेट दिली.**

2) पश्चिम घाट (सह्याद्री) :

महाराष्ट्राच्या पश्चिमेस किना-याला समांतर उत्तर दक्षिण दिशेत सह्याद्रीची लांबी 440 कि. मी. असून सरासरी उंची 1200 ते 1300 मी. आहे. सह्याद्रीमुळे महाराष्ट्राचे कोकण व देश (पठार) असे दोन विभाग पडले आहेत.

लाव्हारसापासून निर्माण झालेल्या बेसॉल्ट खडकांचे थरावर थर साचून सह्याद्रीची निर्मिती झाली आहे. सह्याद्री पर्वताचा पूर्व भाग मंद उताराचा व पश्चिम भाग अतिशय तीव्र उताराचा आहे. सह्याद्री घाट माथ्यावरील **महाबळेश्वर व पांचगणी** या ठिकाणांना आम्ही भेटी दिल्या आणि तेथील भौगोलिक घटक अभ्यासले. तेथे **पंचगंगा मंदिर, वेण्णा तलाव, पाचगणी घाटमाथा** आम्ही अभ्यासले. व घाटामधून उतरून वाई या ठिकाणी महाराष्ट्र

पठारावर उतरलो. सहयाद्री माथ्यावरील **रायगड व प्रतापगड** या ऐतिहासीक दृष्ट्या महत्वाच्या गडाना भेट दिली. सोबतच बल्लाळेश्वर गणपतीचे असलेल्या **पाली** या धार्मिक महत्व असलेल्या ठिकाणी सुध्दा आम्ही भेट दिली

कोकणातील गायत्री, सावित्री, वाशिष्ठी अशा सर्वत्र नद्या सहयाद्रीत शिखर भागावर उगम पाऊन पश्चिमेकडे तीव्र उताराने वाहत जाऊन अरबी समुद्रला मिळतात.

3) महाराष्ट्र पठारी प्रदेश

महाराष्ट्राचा 90 टक्के प्रदेश पठाराने व्यापलेला आहे. पठाराची लांबी 750 कि.मी. व रूंदी 700 कि.मी. असून पठाराची सरासरी उंची पश्चिमेला 600 मी. व पूर्वेला 300 मी आहे. महाराष्ट्र पठार हा दख्खनच्या पठाराचाच विस्तृत भाग आहे. महाराष्ट्राच्या पठारावरील वाई या गावापासून आम्ही आमच्या अभ्यास सहलीचा शेवट केला व नंतर वाई पासून ते अकोल्या पर्यंत आम्ही महाराष्ट्र पठाराचा अभ्यास केला.

7

अकोला ते मुरुड-जंजिरा

5)अकोला ते मुरुड जंजिरा दरम्यान अभ्यासले गेलेले भौगोलिक घटक

अकोला ते मुरुड-जंजिरा प्रवास करताना, भौगोलिक वैशिष्ट्यांमध्ये अनेक बदल होतात जे उतार, औष्णिकबदल, जलविभाजक आणि पर्जन्यमानाच्या पद्धतींवर परिणाम करतात. प्रवासादरम्यान हे घटक कसे विकसित होतात ते खालील प्रमाणे दिले गेले आहे

अ) उत्तारचे प्रकार

सौम्य उतार (अकोला जिल्हा): अकोल्याच्या सभोवतालच्या विदर्भात, भूप्रदेश सामान्यत: सौम्य उतारांनी वेढलेला आहे, ज्यामध्ये जमीनीवर तुलनेने सपाट मैदान आहे. हे उतार शेतीसाठी अनुकूल आहेत, ज्यामध्ये शेतजमीन मोठ्या प्रमाणात आहे.

तीव्र उतार (पश्चिम घाट): दख्खनचे पठार आणि पश्चिम घाटाच्या पायथ्याने रायगडाकडे प्रवास जसजसा होत जातो तसतसे हे उतार हळूहळू अधिक तीव्र होत जातात. पश्चिम घाटाच्या प्रदेशात, भूभाग खडबडीत आहे, ज्यामध्ये नद्या आणि नाल्यांनी खनन करून तयार केलेला उंच उतार आणि दऱ्या आहेत.

ब) तापमानातील फरक

अकोला ते रायगड या प्रवासात विदर्भाच्या अंतर्गत मैदानी प्रदेशापासून उंच दख्खनच्या पठारापर्यंतचे संक्रमण आणि पश्चिम घाटातील थंड हवामान यांचा समावेश होतो. यामुळे दख्खनचे पठार आणि पश्चिम घाटाच्या उच्च उंचीवर मैदानी प्रदेशांच्या तुलनेत कमी तापमानाचा अनुभव घेऊन लक्षणीय तापमानात बदल दिसून येतो. पठारावरून प्रवास करताना असे दिसून आले की पठारावर उष्ण आणि कोरडे तापमान आहे. समोर जसे जसे जावे तसे सह्याद्रीच्या पायथ्यापासून तापमानामध्ये बदल होताना दिसून पडतो. सह्याद्रीच्या घाटमाथ्यावर तापमान फार कमी जाणवते. घाटमाथा ओलांडून किनारपट्टीवर उतरल्यास तापमान उष्ण-दमट दिसून पडते. अश्याप्रकरे प्रवास दरम्यान प्राकृतिक रचनेनुसार तापमानात बदल होताना दिसून आला.

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क) जलविभाजक

नदी खोरे (पश्चिम घाट): पश्चिम घाट अरबी समुद्राकडे वाहणाऱ्या आणि बंगालच्या उपसागराकडे वाहणाऱ्या नद्यांमधील प्रमुख जलविभाजन म्हणून काम करतात. पश्चिम घाटातून उगम पावणाऱ्या नद्या, जसे की कृष्णा आणि तिच्या उपनद्या पश्चिमेकडे अरबी समुद्राकडे वाहतात, तर गोदावरीसारख्या पूर्वेकडील नद्या बंगालच्या उपसागराकडे वाहतात.

ड) मृदा

सह्याद्री भागात जांभी मृदा आढळते. सामान्यपणे 200 से.मी. पेक्षा जास्त पर्जन्य व उच्च तापमान असल्याने बेसॉल्ट खडकापासून जांभी मृदा निर्माण होते. अतिवृष्टीमुळे मृदेतील विद्राव्य क्षारांचा निचरा होतो. या क्रियेला 'लिचिंग' असे म्हणतात. सह्याद्रीच्या डोंगर माथ्यावर जांभ्या मृदेचे थर आहेत. त्यांना 'लटेराइट कॅप्स' असे म्हणतात. जांभ्या मृदेचा रंग तांबूस गर्द तांबडा अथवा तांबूस पिवळसर असतो. या मृदेत लोह, ॲल्युमिनीयमच्या ऑक्साइडमुळे या मृदेला तांबडा रंग प्राप्त होतो. जांभ्या मृदेची सुपिकता मध्यम स्वरूपाची अथवा कमी असते. जेथे या मृदेचे थर जास्त जाडीचे आहेत तेथे भात शेती केली जाते.

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रायगड जिल्हा (कोकण प्रदेश):

कुंडलिका, सावित्री आणि उल्हास नद्या: कोकण प्रदेशातील रायगड जिल्ह्यात पोहोचल्यावर, नद्या आणि त्यांची मुखे अरबी समुद्राकडे वाहतात. कुंडलिका, सावित्री आणि उल्हास नद्या जिल्ह्यातील प्रमुख जलस्रोत आहेत, ज्या पश्चिम घाटातून उगम पावतात आणि अरबी समुद्रात जावून मिळतात.

पश्चिम घाट (रायगड जिल्हा):

धबधबे आणि नाले: रायगड जिल्ह्यातील पश्चिम घाट प्रदेशात, अनेक धबधबे, नाले आणि नाले उतारावरून खाली उतरताना दिसतात. तीव्र उतारावरून वाहत असल्यामुळे नद्या फार वेगाने वाहतात त्यामुळे या नद्यांवर धबधब्यांची निर्मिती झालेली दिसते.

एकूणच, अकोला ते रायगड हा प्रवास विदर्भातील पूर्णा नदीच्या मैदानापासून ते भीमा नदीसह दख्खनच्या पठारापर्यंत आणि शेवटी कुंडलिका, सावित्री, यांसारख्या नद्यांसह रायगड जिल्ह्याच्या किनारपट्टीच्या प्रदेशापर्यंतच्या विविध प्रकारच्या नदी भरुपांची ओळख देतो. या नद्या ज्या प्रदेशातून मार्गक्रमण करतात त्या प्रदेशांच्या भूगोल, पर्यावरण आणि सामाजिक-आर्थिक घटकांना आकार देण्यात महत्त्वपूर्ण भूमिका बजावतात.

6) कोंकण किनारपट्टी दरम्यान पाहलेली भौगोलिक, ऐतिहासिक, सांस्कृतिक ठिकाणे.

अ) मुरुड बीच:

हा भारताच्या महाराष्ट्र राज्यातील रायगड जिल्ह्यात आहे. हे अरबी समुद्राच्या किनारपट्टीवर पसरलेले आहे आणि मूळ वालुकामय किनारे आणि स्वच्छ पाण्यासाठी ओळखले जाते. मुरूड समुद्रकिनारा हिरव्यागार टेकड्यांनी वेढलेला आहे तेथील नयनरम्य वातावरण पर्यटकांना आकर्षित करतो. मुरुड बीच हे एक लोकप्रिय पर्यटन स्थळ आहे, जे पोहणे, सनबाथिंग आणि वॉटर स्पोर्ट्ससाठी लोकप्रिय आहे.

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भौगोलकदृष्ट्या हे एक महत्वाचे स्थान आहे. तेथील किनाऱ्यांचा अभ्यास, सागरी लाटांमुळे किनाऱ्याचे झालेले विदारण, खारपुटीच्या वनस्पती सागरी जैवविविधता इत्यादी गोष्टी भौगोलिक दृष्टीने आम्ही अभासल्या. याव्यतिरिक्त, हा ऐतिहासिक मुरुड-जंजिरा किल्ल्यासाठी प्रसिद्ध आहे, जो किना-याच्या अगदी जवळ एका बेटावर उभा आहे आणि बोटींनी पोहोचता येते.

ब) जंजिरा किल्ला

भौगोलिक महत्त्व:

जंजिरा किल्ला हे अरबी समुद्रात अगदी मोक्याच्या स्थानी वसलेले आहे त्यामुळे त्याचे अनन्य साधारण भौगोलिक महत्त्व आहे. अक्रमांकर्त्या पासून बचावासाठी या किल्ल्याचा फायदा झाला आहे. सोबतच सागरी व्यापारी मार्ग नियंत्रित करण्याच्या दृष्टीने याचे विशेष महत्व आहे. सर्व बाजूंनी पाण्याने वेढलेला असल्यामुळे नैसर्गिक संरक्षण प्रदान करते. सागरी लाटांमुळे झालेले विदारण येथे आम्ही अभ्यासले.

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ऐतिहासिक महत्त्व:

विशेष स्थापत्य कलेचा नमुना म्हणून या किल्ल्याकडे पाहल्या जाते. जंजिरा किल्ला त्याच्या प्रभावी स्थापत्यकलेसाठी प्रसिद्ध असून तो पूर्णपणे दगडाने बांधलेला आहे. त्याची बांधणी मध्ययुगीन काळातील कौशल्य आणि कारागिरी दर्शवते. सोबतच मराठा नौदल शक्तीचे प्रतीक म्हणून या किल्ल्याकडे पाहिल्या जाते. हा किल्ला या प्रदेशातील समृद्ध सांस्कृतिक आणि ऐतिहासिक वारशाचा पुरावा आहे, जो पर्यटक आणि इतिहासकारांना आकर्षित करते.

क) दिवेआगर समुद्रकिनारा

महाराष्ट्राच्या कोकण किनाऱ्यावरील रायगड जिल्ह्यात स्थित दिवेआगर समुद्रकिनाऱ्याला अनेक भौगोलिक प्राप्त झाले आहे. **तटीय विदरणाचा अभ्यास** करण्यासाठी हा किनारा आम्ही निवडला. सोबतच **जैवविविधता हॉटस्पॉट** म्हणून या

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किनाऱ्याकडे पाहिले जाते. समुद्रकिनारा आणि त्याच्या सभोवतालचा परिसर जैवविविधतेने समृद्ध आहे, विविध वनस्पती जसे की **नारळाच्या अनेक प्रजाती, खारपुटी वनस्पती** (mangroves), विविध समुद्री गवतांच्या जाती पाहायला मिळाल्या.

७) सह्याद्रीच्या घाटमाथ्यावर पाहिलेली भौगोलिक, ऐतिहासिक, सांस्कृतिक ठिकाणे

अ) महाबळेश्वर

भारताच्या महाराष्ट्रातील सातारा जिल्ह्यात असलेल्या महाबळेश्वरला भौगोलिकदृष्ट्या महत्त्व आहे:

घाटमाथ्याचे स्थान: पश्चिम घाटातील समुद्रसपाटीपासून सुमारे 1,353 मीटर (4,439 फूट) उंचीवर वसलेले, महाबळेश्वर आजूबाजूच्या डोंगर आणि दऱ्यांचे विहंगम दृश्य दाखवते.

हिल स्टेशन: पश्चिम घाटातील सर्वोच्च हिल स्टेशन्सपैकी एक म्हणून, महाबळेश्वरला थंड आणि आल्हाददायक हवामान आहे. हा प्रदेश हिरवीगार जंगले, धबधबे आणि निर्मळ तलावांनी सुशोभित आहे, नैसर्गिक नंदनवन म्हणून या शहराचे वेगळेच आकर्षण दिसून येते.

नद्यांचा उगम: महाबळेश्वर हे शहराजवळील पंचगंगा या ठिकाणापासून उगम पावणाऱ्या कृष्णा कोयना, वेण्णा, सावित्री, वाशिष्ठी नदीसह अनेक नद्यांचे उगमस्थान आहे. या नद्या प्रदेशाच्या पर्यावरण आणि शेतीमध्ये महत्त्वाची भूमिका बजावतात.

स्ट्रॉबेरी लागवड: "भारताची स्ट्रॉबेरी राजधानी" म्हणून ओळखले जाते, महाबळेश्वरचे थंड हवामान आणि सुपीक माती स्ट्रॉबेरीच्या विस्तृत लागवडीस उपयुक्त आहे. यामुळे स्थानिक अर्थव्यवस्था आणि पर्यटन उद्योगात वाढ होताना दिसते.

ब) पाचगणी

हे सातारा जिल्ह्यातील सह्याद्रीच्या पाच डोंगरांनी वेढलेले एक शांत डोंगरी शहर आहे. आल्हाददायक हवामान आणि शांत वातावरणामुळे सुंदर जंगलात हरवून जाण्यासाठी हे योग्य ठिकाण आहे. **छोट्या छोट्या शेतजमिनी** आणि वाड्यांमधून वाहणाऱ्या कृष्णा

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नदीचे दृश्य हे या निर्मळ स्थानाचे सर्वात प्रशंसनीय वैशिष्ट्य आहे. **टेबल लैंड व्ह्यु पॉइंट, धोम तलाव, सिडनी पॉईंट** इत्यादी ठिकाणे आम्ही अभ्यासली. तेथील वैशिष्टपूर्ण भूरचना, **आल्हाददायक वातावरण, दर्यांमधून वाहणाऱ्या नद्या, मॅपल स्ट्रॉबेरी गार्डन** इत्यादी ठिकाणी आम्ही भेटी दिल्या.

क) रायगड

किल्ले रायगड हा महाराष्ट्रातील रायगड जिल्ह्यातील सह्याद्रीच्या पर्वतरांगांत असून समुद्रसपाटीपासून सुमारे ८२० मीटर (२७०० फूट) उंचीवर आहे. मराठी साम्राज्याच्या इतिहासामध्ये त्याची एक खास ओळख आहे. छत्रपती शिवाजीराजांनी रायगडचे स्थान आणि महत्त्व पाहून १६ व्या शतकात याला आपल्या राज्याची राजधानी बनविली. शिवराज्याभिषेक याच ठिकाणी झाला. इंग्रजांनी गड कब्जात घेतल्यानंतर लुटून त्याची नासधूस केली. सदर किल्ला हा महाराष्ट्र शासनाच्या पुरातत्त्व विभागाचे संरक्षित स्मारक आहे.

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Department Of History
Subject : Tour

Sr.No	Name	Signature
1	ADITI SURESH GAWANDE	
2	ADITYA SUDHAKAR CHAUTMAL	
3	AJAY SHANKAR SAWANT	
4	AKANKSHA RAHUL BHARSAKLE	
5	AKSHYA AMBADAS GAWAI	
6	AMAN VINOD NANIR	
7	AMAR SUDHAKAR GAWAI	
8	ANURADHA RAMESHWAR SHEJOLE	
9	ARCHANA SAHEBAO DHANDE	
10	ASHISH GAJANAN BODADE	
11	BUDDHAVIKAS JAGATPAL ATHAWALE	
12	CHARU RAJU APOTIKAR	
13	DHANANJAY JIVAN PANDE	
14	DIKSHA KAILAS INGLE	
15	GANESH VISHNU MORE	
16	KIRAN BHASHKAR CHITODE	
17	MAHADEV KAILAS METANGE	
18	MAYUR SUDHAKAR PATAKE	
19	NAGESH BRAHMADEO INGALE	
20	NIKEETA RAVINDRA SADAR	
21	NISHA RAMESHWAR WAGHMARE	
22	PRIYANKA PRADIP CHAVARE	
23	RAMESHWARI ISHWAR KUNTAL	
24	RAVI GAUTAM RAMTEKE	
25	RUKHMA SUBHASH SHEJOLE	
26	RUPALI DHANRAJ LANKESHWAR	
27	SAKSHI AMBADAS SIRSAT	
28	SAKSHI SANJAY DHORE	
29	SHWETA SIDDHARTH DONGARE	
30	SOMESH BHAURAO AWACHAR	
31	SWATI VIJAY DONGRE	
32	Vaishanvi Dilip Kakde	
33	Monika S Sarode	
34	Shreya Anil Fale	
35	Gaurv Raut	
36	Bharti Solanke	
37	Varsha Kashinath ingole	
38	Khusi Vijay Wagh	
39	Tushar Pralhads Chavhan	
40	Prof Dr Hana Wankhade	
41	Prof Dr Santosh Pastapure	
42	Prof Milind Bhujade	
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44	Prof Ku Radhika Dhotre	

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