



NOTIFICATION

A combined list of Open Elective Paper offered by various Teaching Departments is notified for all concerned as under. The students of all PG programmes under CBCS are required to opt one open elective paper as per the Scheme of Examination of their course/programme (excluding the course(s) offered by their own department).

Sr. No.	Department	Sem	Paper
1	Biotechnology	3rd	Biology of Infectious Diseases
2	Botany	3rd	Plant Resource Utilization
3	Commerce	3rd	Tax Planning for Individuals
4	Computer Science & Engineering	3rd	Introduction to Computer Python Programming Language
5	Economics	3rd	Issues in India Economy
6	English	3rd	Communication Skills
7	Environmental Sciences	3rd	Nanoscience, Environment and Life
8	Geography	3rd	Fundamentals of Geography
9	Hindi	3rd	संप्रेषण कौशल
10	History	3rd	A Brief History of India's Freedom Struggle Contemporary History of India (1947-1964)
11	Management	3rd	Basics of Management
12	Mathematics	3rd	Basics of Vedic Mathematics
13	Political Science	3rd	Human Rights in India Introduction to Indian Constitution
14	Psychology	3rd	Basics of Psychology
15	Yoga	3rd	Foundation of Yoga
16	Zoology	3rd	Animal Behavior and Wild-Life Conservation

Note: The common schedule for classes of open elective papers has already been circulated. The syllabi of the above mentioned papers are enclosed herewith.

REGISTRAR

Endst. No. IGU/Acad./2023/..... 2139-2170

Dated: 21-08-23

Copy of the above is forwarded to the following for information and necessary action:

1. Dean Academic Affairs, IGU, Meerpur.
2. Chairpersons/ Chairperson-Incharges, UTDs, IGU, Meerpur.
3. Controller of Examination, IGU, Meerpur.
4. Director, UCC, with a request to upload the same on university website..
5. Dy Supdt to VC office (for kind information of the Hon'ble Vice-Chancellor), I.G.U., Meerpur.
6. P.A. to Registrar (for kind information of the Worthy Registrar), I.G.U., Meerpur.

Molika Singh
DR (Acad) 21/8/23
for Registrar

Course Name: Biology of Infectious Diseases				Course Code: IGU 2022BT307OEC			
Batch: 2022-2024	Programme: M.Sc. Biotechnology	Semester: III	L 3	T 0	P 0	Credits 3	Contact Hrs. Per Week: 03 Total Hrs.: 45
Total Evaluation Marks: 100 CIE: 20 Marks TEE: 80 Marks		Examination Duration: 3Hrs.					
Course Objectives	The aim of this course is to introduce the students to the basics of biology of infectious disease and causative agents of disease.						
Course Outcomes	After completing this course, the students are expected to learn the following: CO1. This course will make understand different types of disease cause by Virus, Bacteria, Fungi, protozoa. CO2. Aware of warfare agents, hospital-acquired infections (nosocomial). CO3. Aware of water born disease and waste water management. CO4. Hospital-acquired infections, concepts of vaccines, National Immunization Programme (NIP).						
COURSE SYLLABUS							
Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.							
Unit No.	Content						Contact Hrs.
I	Bacteria: Representative diseases - tetanus, cholera, leprosy, plague, and syphilis. Infections caused by anaerobic bacteria, spirochetes, rickettsiae.						10
II	Viruses: Representative diseases to be studied in detail are-viral hepatitis, influenza/respiratory viruses, HPV, rabies, polio and viral cancers, dengue, chickenguinea and AIDS. Fungi: Superficial, subcutaneous, systemic and opportunistic mycoses infections						10
III	Protozoa: Toxoplasmosis, trichomoniasis & leishmaniasis. Parasitic diseases: Ascariasis, Liver fluke, Malaria. Water Born Disease and Waste Water Management						10
IV	Disease Burden and Its Economic Impact: Bacterial and viral vectors; Biological warfare agents; Hospital-Acquired Infections (Nosocomial): Immune compromised states, concepts of vaccines, national immunization programme (NIP) & other important vaccines.						15

Suggested Readings:

1. Jawetz, Melnick, & Adelberg's Medical Microbiology (Lange Basic Science). 23rd ed., Brooks, G.F., Butel, J.S., Stephen, A., Morse McGraw-Hill Medical.
2. Medical Microbiology: with Student Consult. 7th ed., Patrick, R. M., Ken S. Rosenthal, K.S.
3. Mims' Medical Microbiology. Goering, R., Dockrell, H., Zuckerman, M., Ivan M. Roitt, J.M., Peter L. Chiodini Saunders (W.B.) Co Ltd.

M.Sc. Botany
Semester-III

BOT-312
Plant Resource Utilization

Maximum Marks: 100
Theory Examination: 80
Internal Assessment: 20
Time: 3 hrs

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Objective: Course deals with sustainable utilization and management of plant resources by people. It is a strategy to boost livelihoods and food security.

Course outcome (CO)

- CO1. They understand the pattern origin, diversification and cultivation of plants in nature.
- CO2. They are able to design the strategies for conservation of these natural resources.
- CO3. They become well versed with the role and functions of various organizations.
- CO4. It deals with origin, diversification, utility and conservation strategies of natural resources.

Mapping of COs with PSOs for Plant Resource Utilization

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	✓		✓			✓		✓
CO2			✓			✓	✓	
CO3		✓				✓	✓	
CO4			✓				✓	✓

Unit-I

Origin of Agriculture, World Centres of Primary diversity of domesticated plants: The Indo-Burma Centre, Plant Introductions and Secondary Centres. Origin, Distribution, Types, Botany, Cultivation, Harvesting and uses of Wheat and Rice. History, Botany, Breeding, Cultivation and uses of following fruits and vegetables: Mango, Apple, Banana, Potato, Alliums, Cabbage, Spinach and Tomato.

Unit-II

General Account of the Spices: Ginger, Turmeric, Cinnamon, Clove, Umbelliferous spices and Peppers.

Beverage Plants: Source and general account of Tea and Coffee.

Legumes: Origin, Botany, Cultivation and uses of Pigeon pea, Chick pea, Cluster bean, French bean, etc.

Medicinal Plants: Plants as sources of drugs, parts used, composition and uses.

Unit-III

Gums: Important commercial gums and their uses. Tannins and Dyes: Sources and their uses. Vegetable Oils and Fats: Distinction between fatty and essential oils. Drying (Soyabean and linseed), nondrying (Groundnut and Mustard oil) and Semi drying (Cotton seed and Sunflower oil) oils and their uses.

Fibers: Classification, uses, type of fibers - Soft fibers, Hard fibers, Surface fibers, Brush fibers and Braiding fibers.

Unit-IV

Wood and its Uses: Soft woods and hard woods, wood as fuel, construction material. Unexploited plants of potential economic value; plants as a source of renewable energy. Genetic resources and their conservation.

Suggested readings:

1. Anonymous. National Gene Bank: Indian Heritage on Plant Genetic resources (Booklet). National Bureau of Plant Genetic Resource, New Delhi. 1997.
2. Cobby, L.S. and W.M. Steels. An Introduction to the Botany of Tropical Crop Plants. 3rd Ed. The English Language Book Society and Longman, London. 1979.
3. Bole, P.V. and Y. Vaghani. Field Guide to Common Indian Trees. Oxford University Press, Mumbai. 1991.
4. Chandel, K.P.S., G. Shukla and N. Sharma. Biodiversity in Medicinal and Aromatic Plants in India: Conservation and Utilization. National Bureau of Plant Genetic Resources, New Delhi. 1996.
5. Conway, G. and V.W. Rattan. The Doubly Green Revolution. Food for all in the 21st Century. Cornell Univ. Press. 1999.
6. Dastur, J.F., Medicinal Plants of India and Pakistan, 3rd Edition, Meyerbooks, 1985.
7. Hill, A.F. Economic Botany. McGraw Hill Book Co. Inc., New York. 1986.
8. Kochhar, S.L. Economic Botany of the Tropics. 2nd Ed. MacMillan India Ltd., Delhi.
9. Leonard, W.H. & J.H. Martin. Cereal Crops. MacMillan Co., New York, USA. 824 pp. 1963.

Tax Planning for Individuals
Open Elective Course (in Third Semester)
MC.OEC-1
Total Credit-3

Time-3 Hrs.
Total Marks-100
External Marks-80
Internal Marks-20

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory and consist 8 small questions of two marks each, covering the whole syllabus. The remaining 8 questions will be set from the syllabus on two questions from each unit basis; out of which the students will attempt four questions selecting one from each unit. All questions carry 16 marks each

Unit-1: Introduction of Income Tax :Important Definitions- Assessee, Assessee in Default, Previous Year, Assessment Year, Meaning of Income, Casual Income, Gross Total Income, Total Income, Five Heads of Income, Tax Free incomes and Agriculture Income, Residential Status and Determination of Residential Status of an Individual, Tax Liability based on residential status. Rates of Income tax for senior citizen, Super Senior citizen and other individuals.

Unit-2

Income from Salary- Salary, Bonus, Commission, and Pension

Taxability on Allowances- Dearness Allowance, Medical Allowance, House Rent Allowance, Children Education Allowance, Uniform Allowance, Hostel Allowance, Warden Allowance.

Tax Liability on Perquisites- Rent Free House, Medical Facility, Education Facility, Use of Mobile, Laptop, Computer and Cars.

Retirement Benefits: Encashment of Earned Leave, Provident Fund, Gratuity, Encashment of Pension.

Unit-3: Taxable Income from House Property-Self Occupied House and Let out House Property. Deductions from House Property Income.

Income From Other Sources- Income from Interest, Dividend, Subletting, Royalty, Family Pension, Income of Insurance Agent.

Unit-4: Some Important Deductions from Gross Total Income- Deduction Under Section 80C, 80CCC, 80CCD, 80D, 80E, 80QQB, 80TTA, and 80U.

Filing of online Income Tax Returns/ITR-1 for a Salaried Person.

Suggested Readings:

1. Direct Taxes law & Practice – Dr. H.C.Mehrotra & Dr. S.P. Goyal, Sahitya Bhawan Publications, Agra.

2. Direct Taxes & Practice – Dr. V.K. Singhania Taxmann Publication.

3. Direct Taxes law & Practice – Dr. Bhagwati Prasad – Wishwa Prakashan, N.Delhi.

4. Simplified Approach to income Tax: Dr. Girish ahuja & Dr. Ravi Gupta – Sahitya Bhawan Publishes & Distributors, Agra.

5. Income Tax : Law and Accounts, P.K.Gupta and N.K.Garg, Sanjay Sahitya Bhawan Agra.

Open Elective (odd semester)
(Provided by the Dept. of Computer Science & Engineering)

(PAPER: MCA-2311-A) INTRODUCTION TO COMPUTER

Max. Marks: 80.
Time: 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Learning Objectives:

1. The fundamentals of computing devices and use of computer hardware and software, networking and mobile computing.
2. Provide hands-on use of Microsoft Office 2013 applications Word, Excel, Access and PowerPoint.
3. Provide foundational or "computer literacy" that prepares students for life-long learning of computer concepts and skills.

Unit-I

Basic Concepts: What is computer, Characteristics of a Computer, Advantages of Computer, Limitations of Computer, Types of computer, Applications of computer, Data Representation, Hardware, firmware, Live-ware, Software: Relationship between hardware and software, System software: Operating system, Translators, Interpreter, Compiler, Assemblers, Linkers. Overview of operating system, Functions of operating system.

Unit-II

Information Systems: Meaning, Need of an efficient Information system, Types of Information System. Information requirement for Planning, Coordination, and control for various levels in Business, Industry. Basic of data arrangement and access. Introduction to database: Definition, Uses of databases, characteristics of database, DBMS, data independencies, difference between traditional file processing system and database approaches.

Unit-III

Net works: LAN, WAN, Wireless Network, Introduction networking, Importance of networking, Communication devices such as Modem, Features of Networking, Introduction to Internet: Meaning of Internet, Growth of Internet, Owner of Internet, Anatomy of Internet, Basic Internet Terminology, World Wide Web, Internet Protocols, Usage of Internet to society, Search Engines.

Unit-IV

Introduction to MS Word: Features of MS Word, component of word document window, creating and Printing a

document, Formatting text and document, Mail Merge, Macro, Export and Import file, working with auto shapes, Adding pictures to a work document.
Introduction to MS Excel: Features of Excel, Creating a table, Formatting worksheet, Types of graph, Excel functions, Printing a worksheet, Managing and Organizing data, Power point presentation.

Course Outcomes:

- C01: Utilize the Internet Web resources and evaluate on-line e-business system.
- C02: Solve common business problems using appropriate Information Technology applications and systems.
- C03: Identify categories of programs, system software and applications, Organize and work with files and folders.
- C04: Describe various types of networks network standards and communication software.
- C05: Identify the basic elements required in a computer system.
- C06: Produce electronic documents using various software applications.

Mapping of Paper No. MCA-2311-A

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
C01	S	S	S	M	S	S	M	S	S	M	S	S	S	S	S
C02	M	S	S	S	S	S	S	S	S	S	M	S	S	M	M
C03	S	M	S	S	M	M	S	S	S	S	S	M	S	S	S
C04	S	S	S	S	S	S	S	S	M	S	S	S	S	S	M
C05	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
C06	S	S	S	M	S	S	S	S	S	S	S	S	M	S	S

S = Strong, M = Medium, W = Weak

References:

1. Introduction "To Computers" by Ms Shikha Nutiyal
2. Introduction to Information Technology" by Rajaraman V
3. Computer Fundamentals" by P K Sinha
4. Computer Fundamentals" by Goel

(Odd semester)
(PAPER: MCA-2311-B) PYTHON PROGRAMMING

Max. Marks: 80.
Time: 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Learning Objectives:

1. Understanding the importance of Python in Machine Learning and Data analysis.
2. Getting knowledge of Machine learning algorithms in Python.
3. Develop the Python programming skills to solve computational problems.
4. Make the students aware about the usefulness of various python packages as per the application requirements.

Unit-I

Introduction to Python Programming, History of Python, its features, Scope of Python, Downloading and installing Python, Python code execution process, run a simple program on Python interpreter and IDLE. The concept of data types; variables, assignments; numerical types; arithmetic operators and expressions; comments in the program.

Unit-II

Conditions, Boolean logic, logical operators; ranges; Control statements: if-else, loops (for, while); short-circuit (lazy) evaluation, lists, tuples, and dictionaries; basic list operators, replacing, inserting, removing an element; searching and sorting lists; dictionary literals, adding and removing keys, accessing and replacing values; traversing dictionaries.

Unit-III

Classes and OOP: classes, objects, attributes and methods; defining classes; design with classes, data modeling, inheritance, polymorphism, operator overloading; exception handling, try block

Unit-IV

Installing and exploring different python libraries used in Graphical User Interface design, Basics of File handling in python, Introduction to Matplotlib.

Course Outcomes

CO1: Exploring the different ways of running Python.

- C02: Teach the students to deal with real world data by importing data and performing various data analysis operations.
 C03: Plotting the data for data visualization.
 C04: Able to understand the Design and analyse small signal amplifier circuits
 C05: Ability to understand Postulates of Boolean algebra and to minimize combinational functions
 C06: Ability to understand Design and analyze combinational and sequential circuits.

Mapping of Paper No. MCA-2311-B

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
C01	S	S	S	M	S	S	M	S	S	M	S	S	S	S	S
C02	M	S	S	S	S	S	S	S	S	S	M	S	S	M	M
C03	S	M	S	S	M	M	S	S	S	S	S	M	S	S	S
C04	S	S	S	S	S	S	S	S	M	S	S	S	S	S	M
C05	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
C06	S	S	S	M	S	S	S	S	S	S	S	S	M	S	S

S = Strong, M = Medium, W = Weak

References:

1. Fundamentals of Python: First Programs Author: Kenneth Lambert Publisher: Course Technology, Cengage Learning, 2012 ISBN-13:978-1-111-82270-5
2. Michael Urbanand Joel Murach, Python Programming, Shroff /Murach,2016
3. Mark Lutz, Programming Python, O'Reilly, 4th Edition, 2010
4. Sheetal Taneja & Naveen Kumar, Python Programming - A Modular Approach with Graphics, Database, Mobile and Web Applications, Based on Python 3.

INDIRA GANDHI UNIVERSITY, MEERPUR, REWARI
DEPARTMENT OF ECONOMICS
OPEN ELECTIVE PAPER
(To be offered to students of other departments of the University)
M.Sc (ECONOMICS) THIRD SEMESTER
ISSUES IN INDIAN ECONOMY
MSC ECO-331

Maximum Marks: 100
Time: 3 Hrs.

External Examination: 80
Internal Assessment: 20

Note: The question paper shall have five units. Each of the first four units will contain two questions and the students shall be asked to attempt one question from each unit. Unit five shall contain eight short answer type questions without any internal choice, covering the entire syllabus.

Unit -I

Introduction of Indian Economy, Features of Indian economy; Nature and Characteristics of Indian economy.

Unit -II

Agriculture: Role and features of Indian agriculture; WTO and Indian agriculture, Poverty in India - Absolute and relative analysis of poverty.

Unit -III

Concepts of Demography- Vital rates, life tables, composition and uses. Measurement of fertility - Total fertility rate, gross and net reproduction rate - Age pyramids, Characteristics of Indian population through recent census.

Unit -IV

Monetary policy of RBI; Growth and problem; Role of commercial banks in India; Banking sector reforms since 1991

SUGGESTED READINGS:

- Bardhan. P.K. (9th Edition) (1999), The Political Economy of Development in India, Oxford University Press, New Delhi.
- Brahmanada, P.R. and V.R. Panchmukhi (Eds.) (2001), Development Experience in the Indian Economy: Inter-State Perspectives, Bookwell, Delhi.
- Datta, R. and KP.M. Sundhram (2003), Indian Economy. S. Chand & Company Ltd. New Delhi.
- Government of India, Economic Survey, (Annual), Ministry of Finance, New Delhi.
- Mishra, S.K and V.K Puri Indian Economy- 151 Development Experience, Himalaya Publishing House, Mumbai, Latest Edition.
- Todaro, P. Development Planning: Models and Methods. United Nations, Guidelines for Project Evaluation.
- Sen, R.K. and B. Chatterjee (2001), Indian Economy: Agenda/or 21st Century:
- Dhar, P.K., Indian Economy - Its growing dimensions. Kalyani Publishers, New Delhi (Latest Edition)
- Mishra, S.K. and V.K. Puri Indian Economy - 1st Development Experience, Himalaya Publishing House, Mumbai, Latest Edition.
- Economic Surveys, Government of India, various issues.
- Reserve Bank of India, Report on Currency and Finance (Annual).

M.A. English (Final)

Session 2021-22

Semester III

Communication Skills (Open Elective Course)

Course Code: XXIV

Time: 3 Hours

Total: 100

Objectives:

Total Credits: ~~4~~ 3 (03) *Romb*

Theory: 80

Internal Assessments: 20

1. To improve the basic skills of reading, writing, listening and speaking among students of any subject.
2. To prepare students to face interviews and group discussions.
3. To acquaint students with the contemporary, colloquial and idiomatic expressions in language.
4. To train them in practical letter writing and forms of business communication

Unit I: Understanding Communication Skills

- i. What is communication, types of communication?
- ii. Media of communication, channels of communication
- iii. Barriers to effective communication.
- iv. Role of communication skills in society

Unit II: Understanding figurative language

- i. Idioms and phrases, making sentences with at least 50 contemporary idioms and phrases should be taught
- ii. Agreement of subject and verb, correct usage of prepositions.
- iii. Conditional sentences.
- iv. New terms from Management, Information Technology and social media should be taught.

Unit III: Letter writing

- i. Resume writing and job application
- ii. Business letters (Orders, Inquiries, Sales letters, Complaints)
- iii. Memos and replies to memos.
- iv. Emails

Unit IV: Presentation Skills

- i. How to effectively organize thoughts, research and data collection for speech/presentation, the use of logic and sequence, central idea.
- ii. Oral presentation, diction, tone, clarity and body language.
- iii. Power point presentation
- iv. Time management and preparation, adaptation skills if changes occur.

M. Sc. Environmental Sciences with specialization in Nanotechnology; Semester-III

Nanoscience, Environment, and Life

Course Code-EVS307

Exam Course Code-307

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Objectives: - Nanotechnology is often described as an emerging technology—one that not only holds promise for society, but also is capable of revolutionizing our approaches to common problems. Nanotechnology is not simply working at ever smaller dimensions; rather, working at the nanoscale enables scientists to understand and utilize the unique physical, chemical, mechanical, and optical properties of materials that occur at this scale. This course has the potential of improving the environment through the direct application of nanomaterials for detecting, preventing, and removing pollutants and the indirect application of them by using a better industrial design process and production of products compatible with the environment.

Course Outcomes: On successful completion of this course, the students will be able to:

CO 1. Understand environment-related case studies, and properties of nanomaterial environmental fate

CO 2. Enhance learning about health impact, safety, and toxicological effects in the environment.

CO 3. Know about the application of nanotechnology waste management and wastewater treatment

CO 4. Understanding of ethical and societal implications of nanoscience.

Note: The question paper will have nine questions in all. Question No. 1 shall be compulsory and will contain eight short answer-type questions (not exceeding 50 words each) covering the entire syllabus. In addition, the question paper will have four units consisting of two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. All questions carry equal marks.

Module-I	Weightage (%)
Descriptors/Topics Application of Nanotechnology: Nanotechnology for waste reduction and improved energy efficiency, nanotechnology-based water treatment strategies. Nanoporous polymers and their applications in food packaging, nanomedicine, nanobiology, and remediation.	25
Module-II	
Descriptors/Topics	25

Environmental Pollution by Nanoparticles: Health impact, safety and toxicological effects transport of nanomaterials in soil/sediments. Study of physical and chemical properties of nanomaterials influencing their behavior in the environment and in biological systems.		
Module-III		
Descriptors/Topics		25
Environment Related Case Studies on Nanomaterials: Screening of nanomaterials for understanding potential effects to human health and the environment. Relationships between key properties of nanomaterials and their environmental fate, transport, transformation, bio- distribution, toxicity.		
Module-IV		
Descriptors/Topics		25
Ethical and societal implications - the public interface of science technology and human values - origins of the precautionary principle - the citizen as a moral agent - the principle of social justice - utilitarian priorities; The role of foresighting.		
Recommended Studies: -		
1. Environmental Chemistry for a Sustainable World, Volume 1: Nanotechnology and Health Risk Editors: Lichtfouse, Schwarzbauer, Robert		
2. Advances in Nanotechnology and the Environment, Juyoung Kim, CRC Press, Taylor and Francis Group.		

Mapping of COs with PEOs and PSOs for Nanoscience, Environment, and Life

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PEO5	PEO10
CO1		√		√	√		√		√
CO2		√			√	√			√
CO3				√		√		√	√
CO4	√			√			√		

M. Sc. Geography
Semester- III

Course Code: GEOG312
Fundamentals of Geography
(Open Elective Course)

Maximum Marks-100
Theory Examination-80
Internal Assessment-20
Time- 3 hrs.

Note: Question no. 1 shall be compulsory and will contain eight objective type questions covering entire syllabus. In addition, the question paper will have four units consisting of two questions each. Candidates are required to attempt one question from each unit. All questions carry equal marks.

Course Objectives

1. This paper is an important for other disciplines/courses to get a basic knowledge of geography.
2. The course provides an overview of fundamental concepts on the evolution of landforms.
3. The course is to introduce students the various land forming processes and how these depend on climate, tectonic regimes and oceanographic processes and solar system.
4. The course is to empower students in better understanding of both internal and external processes that build and shape earth's surface and how the geomorphic agents (winds, sea waves, circulation of oceanic water and currents) can mould the landscape.

Unit-I

Solar System, Solar and Lunar Eclipses; Earth-shape, movements, formation of day/nights and seasons; Location-Latitude-longitude, longitude and time zones, International Date Line.

Unit-II

Interior of earth; volcanism and earthquakes; plate tectonics; weathering and erosion; Relief, Introduction

Unit-III

Weather and Climate: factors affecting and distribution; composition and structure of atmosphere; Atmospheric pressure and global winds; introduction to Monsoon.

Unit-IV

Relief of oceans; oceanic salinity; circulation of oceanic water, currents of Atlantic, Pacific and Indian Oceans.

Recommended Readings:

1. Leong, Goh Cheng., 2015, Certificate Physical and Human Geography, Oxford University Press, New Delhi.
2. Getis, Arthur and Blij and Mark and Getis Victoria., 2014, Introduction to Geography, McGraw Hill Education.
3. Singh, Savinder., 2006, Physical Geography, Pravalika Publication Allahabad.

तृतीय सेमेस्टर

सप्त प्रश्नपत्र (मुक्त ऐच्छिक पाठ्यक्रम)

HND-3124

संप्रेषण कौशल

समय : 3 घण्टे

पूर्णांक : 100 अंक

आंतरिक मूल्यांकन : 20 अंक

लिखित परीक्षा : 80 अंक

निर्देश -

- 1 पाठ्यक्रम में निर्धारित प्रत्येक इकाई में से तीन-तीन प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को प्रत्येक इकाई से दो-दो प्रश्न का उत्तर देना होगा। कुल आठ प्रश्न करने होंगे। प्रत्येक प्रश्न के लिए 9 अंक निर्धारित हैं। पूरा प्रश्न 72 अंक का होगा।
- 2 पूरे पाठ्यक्रम में से 8 वस्तुनिष्ठ अनिवार्य प्रश्न पूछे जाएंगे। प्रत्येक प्रश्न एक-एक अंक का होगा।

इकाई-1 भाषा और संप्रेषण

भाषा का स्वरूप, संप्रेषण का स्वरूप

संप्रेषण के मूल तत्व, संप्रेषण की विशिष्टता,

ध्वनि, ध्वनियों का वर्गीकरण एवं उच्चारण कौशल,

वाक्य विन्यास, आंगिक चेष्टाएं और संप्रेषण के विविध रूप

इकाई-2 श्रवण-कौशल

श्रवण कुशलता (प्रभावी श्रवण)

श्रवण सक्रियता

पुनर्रचना के लिए श्रवण

रूपरेखा के लिए श्रवण

इकाई-3 लेखन-कौशल

प्रभावी लेखन, संचार माध्यम के लिए लेखन,

पुनर्रचना सार संक्षेपण,

रिपोर्ट लेखन, विविध पत्र लेखन, प्रारूपण एवं टिप्पण लेखन

इकाई-4 संवाद-कौशल

संवाद का स्वरूप

साक्षात्कार कौशल विधि

सामाजिक आदान-प्रदान के तौर-तरीकों का अध्ययन

अभिवादन कौशल, भाषण, वाद-विवाद, सामूहिक परिचर्चा आदि

सहायक ग्रंथ

- भाषा शिक्षण : रवीन्द्रनाथ श्रीवास्तव, वाणी प्रकाशन, नई दिल्ली
हिन्दी भाषा : संरचना और प्रयोग, रवीन्द्रनाथ श्रीवास्तव आलेख प्रकाशन नई दिल्ली
व्यवसायिक हिन्दी : डॉ० भोलानाथ तिवारी / महेन्द्र चतुर्वेदी, शब्दाकार प्रकाशन दिल्ली
सृजन और संप्रेषण : स० ही० वात्स्यायन 'अज्ञेय', संचित प्रकाशन दिल्ली
जनसंचार माध्यमों का सामाजिक चरित्र, जयरीमल पारिख, अनामिका प्रकाशन, नई दिल्ली

M.A HISTORY
SEMESTER- III
Paper Code HIS-307

Open Elective 01: A Brief History of India's Freedom Struggle

Maximum Marks-100
External Marks-80
Internal Assessment-20
Max. Time - 3 hrs.

Note : There shall be nine questions to all. Question No. 1 shall be compulsory, consisting of eight answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

The objective of this paper is to examine the evolution of the colonial state, focussing on the period from the early nineteenth century to the 1948s. It seeks to enable students to understand the character of the colonial state, the manner in which it exercised its authority, the devices it used for legitimization, and some of the means by which it sought to discipline colonial subjects. Historiographical approaches, and negotiation on issues such as sovereignty, would be explore. At the end of the course, students would be Acquainted with some of the crucial issues relating to characterization of the colonial state, and the historiography on the problem of sovereignty.

Familiar with features of some of the major organs of the state.

Comprehend the manner in which the colonial state attempted to seek legitimacy, and its recourse to the use of violence to establish its authority.

Grasp the ways in which sections of Indian society were sought be co opted into the colonial apparatus.

Make sense of the several options available for colonial governance, wherein the indirect mode was a frequently preferred option.

Unit I:

Colonization of India,

Anti-Colonial Civilian, Tribal Uprisings(Sanyasi, Santhal, Mundas, Kol etc)

Revolt of 1857 and Different Social Classes.

Peasant Movements. (Indigo, Pabna, Deccan)

Unit II:

Rise of Incipient Indian nationalism in Reform Movements

Ideologies and Programmes of the Indian National Congress, Moderates and Extremists: 1885-1920. Social and Economic Bases of Nationalism, Home Rule League

Trends in Swadeshi movement.

Ideologies and Programmes of Indian revolutionaries in India and abroad

Unit III:

Gandhian Mass Movement: Phases of Mobilization: Non-Cooperation, Civil Disobedience and Quit India. Left Wing Politics(CSP, Kisan Sabha and Trade Unions).

Unit IV:

Two Nation Theory and Rise of Communalism

Movement of the Depressed classes

INA and RIN , Independence and Partition and Integration of Princely States

Suggested Readings:

1. SekharaBandyopādhyāya(2004). From Plassey to Partition: A History of Modern India. Orient Blackswan.
2. Chandra, Bipan; Mridula Mukherjee, Aditya Mukherjee, Sucheta Mahajan, K.N. Panikkar (1989). India's Struggle for Independence, New Delhi: Penguin Books.
3. Heehs, Peter (1998). India's Freedom Struggle: A Short History. Delhi: Oxford University Press.
4. Chandra, Bipan, Amal Tripathi and Barun De(1972), Freedom Struggle, National Book Trust.
5. Chand, Tara(1967), History of Freedom Movement in India, Vol. I-IV, Publication Division.
6. Desai, A.R.(1948), Peasant Struggles in India, Bombay.
7. Majumdar, R.C(1962-63), History of Freedom Movement, Vol. I- III, Calcutta.
8. Gore, M.S., The Social Context of an Ideology: Ambedkar's Political and Social thoughts.
9. A. Jalal, and S. Bose, (1997) Modern South Asia: History, Culture, and Political Economy. New Delhi: Oxford University Press, pp. 135-156.
10. A. Nandy, (2005) RashtravadbhanamDeshbhakti Translated by A. Dubey, New Delhi: Vani Prakashan. pp. 23-33. (The original essay in English is from A. Nandy, (1994) New Delhi: Oxford University Press, pp. 1-8.)

M.A HISTORY
SEMESTER- III

Paper Code – HIS 308

Open Elective 02 – Contemporary History of India (1947-1964)

Maximum Marks-100

External Marks-80

Internal Assessment-20

Max. Time - 3 hrs.

Note : There shall be nine questions to all. Question No. 1 shall be compulsory, consisting of eight answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

At the end of the course, students would Learn about the histories of India during the period between 1947 to 1964. Independence and Partition, Making of the Indian Constitution, The Problem of Kashmir, Integration of Princely State, Economic Planning, Socio-Economic Change : Caste, Community and Class. Foreign Policy, Growth of National Political Parties.

Unit – I

Independence and Partition; Rehabilitation of the Displaced People; Making of the Indian Constitution and its Characteristics; The Problem of Kashmir

Unit – II

Integration of Princely States ; Linguistic Reorganisation of States; Economic Planning

Unit – III

Social Legislation : Hindu Code Bill its Corollary Acts; Law for Scheduled Castes and Scheduled Tribes; Socio-Economic Change : Caste, Community and Class

Mokh

Unit – IV

Foreign Policy : India and the Non-Aligned Movement; Indo-Pak Relations;
Sino-Indian Relations; India's Relations with U.S.A. and U.S.S.R.
Growth of National Political Parties; Politics at the National Level; Centre State Relations;
Democratic Decentralization

Suggested Readings :

- 1 Bolshevik, A. & Dyakov, A Contemporary History of India
- 2 Basu, D.D. Shorter Constitution of India
- 3 Bettleheim, Charles India Independent
- 4 Bose, Sumandra The Kashmir Problem
- 5 Brass, Paul R. The Politics of India since Independence
- 6 Bipan Chandra et al. Swatantrrottar Bharat (Hindi)
- 7 Das, Manmath Nath Partition and Independence of India : Inside
Story of the Mountbatten Days
- 8 Desai, A.R. India's Path of Development
- 9 Engineer, A.A. Communal Roots in Post-Independent India
- 10 Gaur, Madan India : 40 Years after Independence
- 11 Hodson, H.N. The Great Divide
- 12 Jaisingh, Hari India and Non-Aligned World : Search for A New Order
- 13 Kothari, Rajni Democratic Policy and Socialist Change in India
- 14 Kothari, Rajni Caste in Indian Politics
- 15 Mathew, H. India : State and Society
- 16 Menon, V.P. Foreign Policy of India
- 17 Menon, V.P. Transfer of Power in India
- 18 Misra, A.B, Foreign Polity of India
- 19 Morris Jones, W.H. Government and Politics in India
- 20 Mukhopadhyay, A.P. (ed.) Society and Politics in Contemporary India
- 21 Nanda, J. Punjab Uprooted : A Survey of the Punjab Riots and the Rehabilitation
Problems
- 22 Nehru, Jawaharlal India's Foreign Policy

Master of Business Administration (MBA)
Semester-III
Basics of Management
MBA 330 (Open Elective Course)

Maximum Marks: 100
External Marks: 80
Internal Assessment: 20
Time: 3 Hrs.

Note: There shall be nine questions in all. Question No. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Learning Objectives:

- LO1: To understand the basic concepts and evolution of the management
- LO2: To understand the role of management functions in organizations
- LO3: To appraise the basic design elements of organizational structure
- LO4: To understand the best management practices of the world

Unit I

Management: Introduction, definition, functions and levels of Management; Evolution of management thought: The Scientific Management School, Classical organisation theory school, the Behavioural School, System and Contingency approach.

Unit II

Planning: meaning and nature and importance of planning, types of plans, process of planning; Organizing: Nature, objectives, elements and process of organizing; Basic concepts: departmentation, line and staff, centralization and decentralization, delegation of authority; Types of organisation structure.

Unit III

Direction: concept, its significance and main elements, Motivation: nature, importance and theories (Maslow Need Hierarchy, Herzberg two factor); Leadership: Meaning and Importance, leadership styles and skills.

Unit IV

Control - concept, nature, its process & importance; Recent trends in management: Knowledge management, Total Quality Management; Corporate governance; Ethical dilemmas in Management.

Case discussion is compulsory at the end of every unit.

Course Outcomes:

After completing this course students will be able to:

CO1: Describe the primary functions of management and roles of managers

CO2: Comprehend the role of management functions in managing organizations for organization success

CO3: Explain how managers align the planning, organizing, directing and controlling

CO4: Describe the current developments in management practices

Mapping of Paper MBA 330

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2
CO1	S	S	S	S	M	S	S	S
CO2	M	S	S	S	M	S	M	M
CO3	S	M	S	S	M	M	M	S
CO4	S	S	S	S	M	S	M	S

S= Strong, M= Medium, W=Weak

Suggested Readings:

1. Koontz, H, O'Donnell, C & Weihrich, H, *Management*, McGraw Hill.
2. Koontz, Harold & Weihrich Heinz (2015) *Essentials of Management An international, Innovation, and Leadership Prospective*, 10th ed., McGraw Hill, New Delhi.
3. Stoner, James A F, Freeman, R Edward & Gilbert Jr, Daniel R (2013), *Management*, 6th ed., Pearson Education, New Delhi.
4. Robbins, S P and Decenzo, D (2017) *Fundamentals of Management*, Pearson Education, New Delhi.
5. Vasishth, N, Vasishth, V. *Principles of Management: Text and cases*, Taxmann Publications Pvt. Ltd., New Delhi.
6. Terry, G.R. & Franklin, S G, *Principles of Management*, McGraw Hill Higher Education.

(Open Elective Course offered by Department of Mathematics for students of other Departments)

CO-PSO matrix for the Course MAT-316: Basics of Vedic Mathematics

COs	PSO1	PSO2	PSO3	PSO4
CO1	S	S	S	M
CO2	S	S	S	M
CO3	S	S	S	M
CO4	S	S	S	M

CO-PO matrix for the Course MAT-316: Basics of Vedic Mathematics

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	M	S	M	S	S
CO2	S	S	S	S	S	M	S	M	S	S
CO3	S	S	S	S	S	M	S	M	S	S
CO4	S	S	S	S	S	M	S	M	S	S

S=Strong, M=Medium, W=Weak

MAT-316: Basics of Vedic Mathematics

Time : 3 hours

Max. Marks : 80

Credits : 3:0:0

Course Objectives: The aim of this course is to familiarize the students with the mathematical underpinnings and techniques, enhance computation skills, and develop logical and analytical reasoning.

Course Outcomes: After studying this course, the student will be able to

- CO1. understand the meaning of mathematical sutras in Sanskrit and perform multiplication using vertically and crosswise.
- CO2. understand the concept of multiplication using base and subbase method, squaring using Nikhilam and Duplex method.
- CO3. find cube using Nikhilam and Anurupyena Sutra, understand the concept of Meru-prastar and its applications and perform multiplication of algebraic expressions.
- CO4. find square and square roots of algebraic expressions, solve simple and miscellaneous simple equations using vedic mathematics techniques.

Course Contents:

Unit-I

- Introduction to Vedic Mathematics
- Importance of Vedic Mathematics
- Number system and its applications in Vedic Mathematics
- Multiplication of any number by numbers containing digit 1 only
- Multiplication of any number by numbers containing digit 9 only
- Multiplication using Sutra-Urdhvatiryagbhyam

Unit-II

- Multiplication using base and sub-base method
- Multiplication using Ekadhikena Sutra
- Sum and Difference of Products
- Square using Nikhilam Sutra
- Square using Duplex Method
- Addition and subtraction of squared and products numbers

Unit-III

- Cube using Nikhilam and Amrupyena Sutra
- Division using Dhvajank Method
- Meru-prastar and their applications
- Square root and cube root
- Algebraic Multiplication

Unit-IV

- Addition and subtraction of algebraic products
- Square and square root of algebraic expressions
- Simultaneous simple equations
- Miscellaneous Simple equations
- Auxiliary fractions
- Triplets

Note: The question paper will consist of five Sections. Each of the sections I to IV will contain two questions from each unit and the students shall be asked to attempt one question from each. Section-V shall be compulsory and will contain eight short answer type questions without any internal choice covering the entire syllabus.

Reference Books

1. Bharti Krishan Tirath: Vedic Mathematics, Motilal Banarsidas New Delhi, 2001.
2. Dr. Vyawahare-Chouthaiwale-Borgaonkar : Introduction to Vedic Mathematics, Swadhaya mandal, Kille pardi, Gujarat, 2003.
3. Chouthaiwale-Kolluru: Enjoy Vedic Mathematics, Sri Sri Publications Trust, Bangalore, 2010.
4. N. K. Jain, Choudhary: Vedic and Jain Mathematics, Vishwa Punar Nirman, Talangkheddi, Nagpur.
5. V. G. Unkalkar: Magic world of Mathematics, Vandana Publishers Bangalore, 2008.
6. V. G. Unkalkar: Excel with Vedic Mathematics, Vandana Publishers Bangalore, 2009.
7. V. G. Heroor, The History mathematics and Mathematicians of India, Vidya Bharti, Bangalore, 2006.
8. V. G. Heroor, Jyopati, Rajasthan Sanskrit University, Jaipur, 2007.

M.A.-POLITICAL SCIENCE
SEMESTER-III

PS312

Human Rights in India-I
(O.E.C.)

Maximum Marks -100

External Examination -80

Internal Assessment -20

Time - 3 Hours

Note: There will be nine questions in all covering the whole syllabus of four units. Question No.1 will be compulsory covering all the units and shall carry 8 short answer questions of two marks each. (8*2=16) The rest of the eight questions will be from all the four units. There will a set of two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each. (16*4=64)

Paper Objectives:

1. This paper aims to aware the students regarding human rights in the world.
2. The paper aim to describe human rights and fundamental rights in India
3. The Paper aim to aware to students about constitutional provisions of rights.

Unit:I

The Concept of Human Rights: Western and Third World Context

Unit:II

Human Rights and Constitutional – Legal Framework in India, Fundamental Rights Directive Principles of State Policy and Protection of Human Rights Act 1993.

Unit:III

Human Rights: Issues and Challenges: Refugees, Minorities , Women and Children

Unit: IV

Civil Society and Human Rights: Media, Public Opinion and Human Right.

Course Outcomes:

1. This paper able students about legal framework of human rights and fundamental rights in India.
2. The paper enables students aware about issues and challenges of human rights.
3. The paper enables students aware about the rights of Minorities, Women and Children.

Suggested Reading:

- Alston Philip, The United Nations and Human Rights-A Critical Appraisal, Orxford, Clarendon, 1995.
- Baxi, Upendra (ed.) The Rights to be human, Delhi Lancer, 1987
- Beetham, David edited, Policies and Human Right, Oxford, Blackwell, 1995
- Desai, A. R. (ed.) Violations of Democratic Rights in India. Bombay, Popular Prakashan, 1986.
- Hargopal G. Political Economy of Human Right, Hyderabad, Himalaya, 1999.
- Human Rights in India- The Updated Amnesty International Report, Delhi, Vistaar.

**M.A.-POLITICAL SCIENCE
SEMESTER-III**

PS313

**Introduction to Indian Constitution
(O.E.C)**

Maximum Marks-100
External Examination-80
Internal Assessment-20
Time- 3 hrs

Note: There will be nine questions in all covering the whole syllabus of four units. Question No.1 will be compulsory covering all the units and shall carry 8 short answer questions of two marks each. (8*2=16) The rest of the eight questions will be from all the four units. There will be a set of two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each. (16*4=64)

Course Objectives: -

Its aim is to develop a better understanding of the Indian constitution and different organs of the government among the readers. They will be able to appreciate the philosophy of the Indian constitution basic principles of governance and centre state relations as well as the overall functioning of the Indian federation.

Unit-I

Evolution, formation and Philosophy of Indian Constitution. Preamble of Indian Constitution and its importance.

Unit-II

Fundamental Rights and Duties. Directive Principles of State Policy

Unit-III

Union Legislature, Executive and Judiciary State legislature, Executive and Judiciary

Unit-IV

Federal system and Centre-State relations in India, Elections, Electoral Process and Electoral Reforms.

Course learning outcomes:

The learning outcomes are as follow: -

1. To understand the philosophy of the Indian Constitution
2. To understand the Fundamental Rights, Duties and Directive principle of state policy.
3. To learn about the structure and functioning of the Union government.
4. To learn about the structure and function of state government and the centre state relations in India.

Basics of Psychology

Paper Code: PSY-OEC
Credits: 3 (Hrs/week: 3)
Internal Assessment: 20 marks

Total: 100 marks
Examination: 80 marks
Time: 3 hours

Note: Nine questions would be set and candidates would be required to attempt five questions. There would be two questions (16 marks each) from each of the four units. Candidates would attempt one question from each unit. Unit V would comprise of Question No. IX, which would be compulsory. It shall be based on the entire syllabus and would contain eight short answer questions of two marks each.

Unit – I:

Psychology: Nature and Origin.
Scope and fields of Psychology. Ethical issues in Psychology.

Unit - II:

Personality: Nature and Concept.
Theoretical approaches of Personality – Biological, Psychological, Socio-Cultural.

Unit – III:

Emotions: Nature and Functions.
Theories: James-Lange, Canon-Bard, Schachter Singer, Emotional Intelligence.

Unit-IV:

Motivation: Nature and concept.
Theories: Psychoanalytic, Cognitive, Humanistic and Attribution.

Recommended books:

1. Passer, M. W., & Smith, R. E. (2004). Psychology: The science of mind and behavior (2nd ed.). McGraw-Hill.
2. Carlson, N. R. and William Buskit (1997). Psychology: The Science of Behavior. Allyn and Bacon.
3. Chaplin, T. Kraweic, T. S. (1979). Systems and Theories of Psychology. Holt Rinehart and Winston.
4. David Hothersall (1995). History of Psychology. Ohio: McGraw Hill International.
5. Franken, R. E. (1998). Human Motivation. California Brooks and Cole.
6. Larsen, R. J., & Buss, D. M. (2013). *Personality Psychology: Domains of knowledge about human nature* (5th ed.). New York: McGraw Hill.
7. Woleman, Benjamin, B. (1979). Contemporary Theories and Systems in Psychology. Delhi: Freeman Book Co.
8. Morgan, C. T., King, R. A., Weisz, J. R. and Schopler, J. (1987). Introduction to Psychology. Singapore: McGraw Hill.

Open Elective Paper

Foundation of Yoga

Paper code-OEPY-17

Max. Marks:60

Note:- 1. Question No. 1 will be compulsory and will carry 12 marks. It will comprise of 6 short answer type question of 2 marks each to be selected from the entire syllabus.

2. Four questions will be set from each unit, out of which the student will be required attempt one question from each unit. Questions will carry 12 marks each.

Unit -1

- Origin of Yoga, History, Definitions, Importance, Development of Yoga, aim and objectives of Yoga
- Introduction to streams of Yoga – Karma Yoga, Gyan Yoga, Bhakti Yoga
- Elements of Yoga and Yogic practices in Jainism and Buddhism

Unit – 2

- Definition of Hath Yoga, Concept of Mattha, Time, Mithara, Success and Failure elements of Hath Yoga
- Concept, Definition, Benefits, Techniques, Precautions of Sodhan kriya, Asana, Pranayam and Meditation according to Gherand Samhita

Unit -3

- General introduction to Bhagvat gita, Patanjali Yoga Sutra
- Definition of Yoga in Bhagvat Gita and their relevance and scope, essentials of Bhagvat Gita
- Patanjali yog sutra -Yoga its meaning, purpose and nature of Yoga, chittavritis, kriya Yoga, concept of Ishvara and qualities of Ishvara theory of klesh, Ashtanga Yoga, Karma

Unit-4

- Biography of Various Yogies - Maharishi Patanjali, Gorkashnath, Maharishi Dayanand, Swami Vivekanand, Maharishi Arvind and Aadi Shankaracharya



Practical Yoga

Max. Marks: 40

- Surya Namaskar
- Asana –
 - A. Standing Posture:- Tadasana, Trikonasana, Vrikshasna
 - B. Sitting Posture – Patamasana, Paschimotanasana, Vajarasana, Ustrasana, Shashankasana
 - C. Prone posture – Bhujangasana, Dhanurasana, Shalabhasana
 - D. Supine Posture – Halasana, Sarvangasana, Setubandh, Chakrasana, Savasana
- Pranayama – Nadi Shodan, Bhastrika, Bharamri, Suryabhedhi, Sheetkari
- Mudra – Jnana Mudra, Vayn Mudra, Vipritkarani Mudra, Shambhavi
- Bandh – Moolbandh, Uddiyan Bandh, Jalandhar Bandh.
- Meditation – Om Meditation

III (a) Each candidate will prepare a practical note book in which Total 10 Asanas, Two Bandh, Suryanamaskar, Four Praanyanama long with photographs as per Class Teacher Advice from the above said complete syllabus.



M.Sc. Zoology
Semester-III

ZOO-308**Animal Behaviour and Wild Life Conservation**

Maximum Marks:

100

Theory Examination: 80

Internal Assessment: 20

Time: 3 hrs

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Objectives

1. This paper aims at providing a critical and conceptually-based understanding of animal behaviour and evolutionary ecology, in the framework of conservation biology and wildlife management.

Course outcomes

- CO1 Students will gain an understanding of the application of animal behaviour to conservation.
- CO2 Students will acquire the knowledge to address trade regulation and management at both the national and international levels.
- CO3 Helps the students to develop skills, concepts and experience to understand all aspects of animal behavior.

CO-PO MAPPING for ZOO-308

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	√	√	√		√	√
CO2	√		√	√	√	√
CO3		√	√	√	√	√

CO-PSO MAPPING for ZOO-308

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	√	√	√	√	√	√
CO2	√	√	√	√	√	√
CO3	√	√	√	√	√	√

Unit-I

Concept of Animal behaviour and its scope. Stereotyped and acquired behaviour patterns: Tropisms, Taxes, Reflexes, Instincts, Aggregation and society: its types and advantages. Types of social organisation in animals

Unit-II

Biological rhythms and concept of biological clock. Various means of communication in animals: chemical, visual, auditory and touch. Concept of learning: law of learning, types of learning – Habituation, trial & error. Learning, latent learning, Insight, Imprinting, Classical conditioning & Instrumental learning.

Unit-III

Wildlife: Definition, significance and wildlife zones of the world and India. PAS Protected Area Systems: Concept and management. Wild life census: its planning, understanding of sample counts.

Unit-IV

Wild life damage: its nature and definition, various methods to control wild life damage. Wildlife and illegal trade & control. Wildlife conservation techniques, role of WWF, IUCN, UNEP, Red Data Book; Categories of Endangered Wildlife Species.

Practicals:

1. Field study of nesting behaviour of common available avian fauna of the region.
2. To prepare charts of wildlife zones of India and the world
3. To study mobbing response of birds in field.
4. Demonstration of food preferences in *Tribolium/ Rhizopertha/ Callosbruchus*.
5. To study the effect of temperature on gill movement in fishes.
6. Preparation of field diary on the basis of observations regarding habitat, habits of
7. Common available avian fauna of the region.
8. Study of morphological changes in common avian species during breeding season.
9. Demonstration of different stages of reproductive cycle in rat/mouse.
10. Field visit to a zoo or wildlife part/sanctuary and preparation of field report.
11. Preparation of charts of endangered amphibians, reptiles and mammals with ecological remarks.
12. Animal behaviour patterns using Photostat sheets.
13. Analysis of standard pug marks of large sized wild mammals