

PGS-251013
Autonomous Examination DEC-2025
SEMESTER-I
M.Sc. ZOOLOGY

Paper – I (Systematic, Biodiversity and Evolution)

Time : 3 Hours

M.M. : 70

Note: Attempt all questions. Scheme of questions and marks are indicated against the questions.

Section-A

**Objective type questions Attempt any 10 questions out of 12 given below.
(1 x 10 = 10)**

- (i) Classification of organism based on evolutionary as well as genetic relationship is called.
 - (a) Phenetics
 - (b) Clodistics
 - (c) Biosystematics
 - (d) Numerical taxonomy
- (ii) Genetic diversity is fast diminishing due to -
 - (a) Introduction of exotic species
 - (b) Mass scale destruction of habitats
 - (c) Introduction of high yielding new varieties.
 - (d) All of the above
- (iii) Related species which are reproductively isolated but morphologically similar are called.
 - (a) Sibling
 - (b) Sympatric
 - (c) Allopatric
 - (d) Morphospecies
- (iv) An example of in Situ biological conservation method is to establish.
 - (a) Zoos
 - (b) Botanical gardens
 - (c) Biosphere reserve
 - (d) Seed banks
- (v) Which of the following had the smallest brain capacity ?
 - (a) Homo erectus
 - (b) Homo habilis
 - (c) Homo sapiens
 - (d) Ramapithecus
- (vi) The term taxonomy was introduced by
- (vii) The phenomenon of reappearance of ancestral traits in an organism that has be lost in recent generations is called as.....
- (viii) The study of animal fossils is called as.....
- (ix) Formation of new species from the parental species is called
- (x) The total number of gene present in all the members of a population is called.....

(02)

- (xi) Molecular drive operates independently of natural selection and genetic drift. (True/False)
- (xii) Evolutionary species concept was proposed by Simpson. (True/False)

Section-B

Very Short answer type questions (word limit – 70-100 words) Attempt any Three questions out of Five given below.

(3 x 3 = 09)

- (i) What do you understand by law of priority in nomenclature ?
- (ii) What is genetic drift ?
- (iii) Describe the levels of taxonomy.
- (iv) Write about ICZN.
- (v) What do you understand by molecular drive ?

Section-C

Short answer type questions (word limit – 200-250 words) Attempt any Three questions out of Five given below. Question for annotation is compulsory.

(6 x 3 = 18)

- (i) Explain the concept of Neo-Darwinism.
- (ii) Write about importance and applications of biosystematics .
- (iii) Describe the origin and diversifications of bacteria.
- (iv) Describe the molecular taxonomy.
- (v) What do you understand by molecular clock

Section-D

Long answer type questions (word limit – 500–600 words) Attempt any three questions out of five given below.

(11 x 3 = 33)

- (i) Describe the post-Darwinian period of evolution.
- (ii) Explain the mechanism of speciation.
- (iii) Describe the steps of taxonomic procedures.
- (iv) Discuss the types and conservation methods of biodiversity.
- (v) What evolutionary trends are seen during human evolution ?

PGS-251014
Autonomous Examination DEC-2025
SEMESTER-I
M.Sc. - Zoology
Paper – II (Principles of Ecology)

Time : 3 Hours

M.M. : 70

Note: Attempt all questions. Scheme of questions and marks are indicated against the questions.

Section-A

01.Objective type questions Attempt any 10 questions out of 12 given below.
(10 x 01 = 10)

- (i) Which of the following requires maximum energy.
(a) Secondary consumer (b) Decomposer
(c) Primary consumer (d) Primary producer
- (ii) Most stable ecosystem is -
(a) Forest (b) Desert
(c) Ocean (d) Mountain
- (iii) The main components of photochemical smog is -
(a) Water vapour (b) Sulphur dioxide
(c) Oxides of nitrogen (d) All the above
- (iv) Secondary succession occurs in a area where -
(a) A glacier has receded exposing new land.
(b) A volcanic eruption has created new rock.
(c) An existing community has been distributed but the soil remains.
(d) An area with no-organism is colonized for first time.
- (v) Which of the following is not an example of abiotic stress for plants.
(a) Flooding (b) Salinity
(c) Pests (d) High temperature.
- (vi) Organism that can produce their own food are called.....
- (vii) The number of deaths in a population per unit time is called.....
- (viii) A pollutant which is mainly responsible for causing acid rain is
- (ix) Incomplete burning of petrol or diesel in vehicles created.....gas.
- (x) ecological pyramid is always upright.

(02)

- (xi) As a predator population increases the prey population decreases.
(True/False)
- (xii) Energy flows in one direction through an ecosystem; it is not recycled like matter.
(True/False)

Section-B

02.Very Short answer type questions (word limit – 70-100 words) Attempt any Three questions out of Five given below.

(3 x 3 = 09)

- (i) Define ecotone.
- (ii) Draw a diagram showing oxygen cycle in ecology.
- (iii) Write any three sources of Radiation.
- (iv) What is acid rain ?
- (v) Write main differences between endotherm and ectotherms.

Section-C

03. Short answer type questions (word limit – 200-250 words) Attempt any Three questions out of Five given below. Question for annotation is compulsory.

(3 x 6 = 18)

- (i) Write the effect of climate on population density.
- (ii) How does Global warming affect ecosystems.
- (iii) What are the Health effects of pesticides.
- (iv) What is the difference between primary and secondary succession ?
- (v) Write a note on Role of skin in osmoregulation for terrestrial animals.

Section-D

04. Long answer type questions (word limit – 500–600 words) Attempt any three questions out of five given below.

(3 x 11 = 33)

- (i) Discuss the role of light as an important ecological factor.
- (ii) Give an account on environmental Hazardness and its management.
- (iii) Describe marine pollution under following heads. (a) Causes and sources of marine pollution (b) Effect of pollution on marine life and habitat.
- (iv) Explain the relationship between "The level of disturbance and species diversity" in a community.
- (v) Write an essay on physiological response to body exercise.

PGS-251015
Autonomous Examination-2025
SEMESTER-I
M.Sc.-ZOOLOGY

Paper – III (Computational Biology, Biostatistics and Bioinformatics)

Time : 3 Hours

M.M. : 70

Note: Attempt all questions. Scheme of questions and marks are indicated against the questions.

Section-A

Objective type questions Attempt any 10 questions out of 12 given below.

(10 x 01 = 10)

- (i) The central processing unit (CPU) of a computer performs.
(a) Input only (b) Output only
(c) Data processing (d) Storage
- (ii) Mean median and mode are measures of -
(a) Dispersion (b) Central tendency
(c) Correlation (d) Probability
- (iii) Standard deviation measure.
(a) Relationship between two variables (b) Variation of spread in data
(c) Central value (d) Mode of data
- (iv) Blast is used for -
(a) Statistical analysis (b) Protein sequence alignment
(c) Word processing (d) Gene cloning
- (v) Which of the following is not a measure of dispersion ?
(a) Range (b) Variance
(c) Mode (d) Standard deviation
- (vi) Mean is the sum of all observations divided by the number of observations.
- (vii) The square of standard deviation is calledvariance.
- (viii) The main function of MS Word is to create and edit..... documents.
- (ix) analysis is used to compare variation among multiple groups.
- (x) The correlation coefficient (r) lies betweenand.....
- (xi) Gene bank stores information about biological sequences. (True/False)
- (xii) Blast is used for text formatting in MS Word. (True/False)

(02)

Section-B

Very Short answer type questions (word limit – 70-100 words) Attempt any Three questions out of Five given below.

(3 x 3 = 09)

- (i) What is histogram.
- (ii) Define correlation coefficient.
- (iii) What is the use of power point software.
- (iv) Define mean deviation.
- (v) What is hypothesis testing ?

Section-C

Short answer type questions (word limit – 200-250 words) Attempt any Three questions out of Five given below. **Question for annotation is compulsory.**

(3 x 6 = 18)

- (i) Explain the types of computer software with examples ?
- (ii) Differentiate between mean, median, mode ?
- (iii) Explain the application of bioinformatics in biological research ?
- (iv) Describe the steps involved in performing a Chi-square test ?
- (v) Write short notes on probability distribution ?

Section-D

Long answer type questions (word limit – 500–600 words) Attempt any three questions out of five given below.

(3 x 11 = 33)

- (i) Explain the applications and importance of computational biology and bioinformatics in zoological studies.
- (ii) What are nucleotide sequence databases and protein databases ? Discuss the roles and examples.
- (iii) Explain the mathematical modeling techniques used in biostatistics and bioinformatics with examples.
- (iv) Describe analysis of variance (ANOVA) and explained its oneway types with examples.
- (v) Describe different methods used for representation of data.

PGS-251072
Autonomous Examination DEC-2025
SEMESTER-I
M.A./M.Sc./M.Com./LLM
Paper – IV - (Research Methodology & Computer
Application:Basics)

Time : 3 Hours

M.M. : 70

नोट : सभी प्रश्न हल करना अनिवार्य है। प्रश्न के समक्ष अंक एवं शब्द सीमा निर्दिष्ट है।

Note: Attempt all questions. Scheme of questions and marks are indicated against the questions.

‘खण्ड-अ’

Section-A

1.वस्तुनिष्ठ प्रश्न-दिये गये 12 प्रश्नों में से किन्हीं 10 प्रश्नों के उत्तर दीजिए।

Objective type questions Attempt any 10 questions out of 12 given below.

(01 x 10 = 10)

- (i) निम्न में से कौन सा शोध का अंग नहीं है-
- (अ) परिकल्पना निर्माण (ब) तथ्यों का संकलन
 (स) परिकल्पना का परीक्षण (द) साहित्यिक चोरी
- Which of the following is not a part of research?
- (a) Hypothesis generation (b) Data collection
 (c) Hypothesis testing (d) Plagiarism
- (ii) शोध-नैतिकता में शामिल है-
- (अ) ईमानदारी और सत्यनिष्ठा (ब) पारदर्शिता
 (स) निष्पक्षता (द) उपरोक्त सभी
- Research ethics includes -
- (a) Honesty and Integrity (b) Transparency
 (c) Impartiality (d) All of the above
- (iii) किसी विशिष्ट उद्देश्य के लिए शोधकर्ता द्वारा एकत्र की गई मूल जानकारी कहलाती है-
- (अ) प्राथमिक स्रोत (ब) द्वितीयक स्रोत
 (स) दोनों अ और ब (द) इनमें से कोई नहीं
- Original information collected directly by the researcher for a unique purpose-
- (a) Primary data (b) Secondary data
 (c) Both 'a' & 'b' (d) None of these
- (iv) कंप्यूटर का बाहरी ढांचा कहलाता है-
- (अ) सॉफ्टवेयर (ब) हार्डवेयर
 (स) प्रिंटर (द) इनमें से कोई नहीं

(02)

The outer structure of a computer is called-

- (a) Software (b) Hardware
 (c) Printer (d) None of these

(v) प्रतिचयन का प्रकार है-

- (अ) संभाव्यता प्रतिचयन (ब) गैर-संभाव्यता प्रतिचयन
 (स) दोनों (द) इनमें से कोई नहीं

The type of sampling is-

- (a) Probability sampling (b) Non-probability sampling
 (c) Both (d) None of these

(vi) निम्न में से कौन सा इनपुट उपकरण नहीं है-

- (a) माउस (b) प्रिंटर
 (c) कीबोर्ड (d) स्कैनर

Which of the following is not an input device

- (a) Mouse (b) Printer
 (c) Keyboard (d) Scanner

(vii) एम. एस.पावर प्वाइंट एकसॉफ्टवेयर है।

M.S. Power point is asoftware

(viii) शोध प्रश्न को हल करने के लिए डेटा इकट्ठा करने और उसका

विश्लेषण करने के तरीके कोकहते हैं।

The method of collecting and analyzing data to answer a research question is called

(ix) किसी बड़े समूह से शोध हेतु चुने गये प्रतिनिधिकहलाते हैं।

Representatives selected from a large group for research are called.....

(x) शोध उद्देश्य की पूर्ति हेतु शोध में नैतिकता अत्यंत आवश्यक है। (सत्य/असत्य)

Research Ethics is essential to achieve the research objective.

(True/False)

(xi) साहित्य-समीक्षा शोध का अंग नहीं है।

(सत्य/असत्य)

Literature review is not a part of research.

(True/False)

(xii) गूगल,बिंग,याहू आदि प्रमुख सर्च इंजन हैं।

(सत्य/असत्य)

Google, Bing, Yahoo etc. are the major search engines. (True/False)

(03)

‘खण्ड-ब’

Section-B

2. अति लघुत्तरीय प्रश्न (शब्द सीमा 70–100 शब्द) दिये गये पाँच प्रश्नों में से किन्हीं तीन प्रश्नों के उत्तर दीजिए।

Very Short answer type questions (word limit – 70-100 words) Attempt any Three questions out of Five given below. (3 x 3 = 09)

- (i) शोध के उद्देश्य को स्पष्ट कीजिये |
Explain the purpose of the research.
- (ii) साहित्यिक चोरी से क्या अभिप्राय है?
What is meant by plagiarism?
- (iii) सैम्पल साइज किसे कहते हैं ?
What is sample size?
- (iv) ऑपरेटिंग सिस्टम क्या है ?
What is an operating system?
- (v) शोध-अन्तराल क्या है?
What is Research-Gap?

‘खण्ड-स’

Section-C

3. लघु उत्तरीय प्रश्न (शब्द सीमा 200–250 शब्द) दिये गये पाँच प्रश्नों में से किन्हीं तीन प्रश्नों के उत्तर दीजिए।

Short answer type questions (word limit – 200-250 words) Attempt any Three questions out of Five given below. (6 x 3 = 18)

- (i) शोध की परिभाषा लिखिए एवं शोध के विभिन्न चरणों पर प्रकाश डालिए |
Write the definition of research and highlight the various stages of research..
- (ii) साहित्य-समीक्षा से क्या अभिप्राय है? शोध हेतु साहित्य-समीक्षा के महत्व पर प्रकाश डालिए |
What is meant by a literature review? Explain the importance of a literature review for research
- (iii) कंप्यूटर की संरचना का परिचय प्रस्तुत कीजिये |
Give an introduction to the structure of a computer.
- (iv) मात्रात्मक एवं गुणात्मक शोध को उदाहरण सहित परिभाषित कीजिये |
Define quantitative and qualitative research with examples..
- (v) शोध-पत्र प्रकाशन हेतु किन बातों का ध्यान रखा जाना आवश्यक है |
What are the things that need to be kept in mind for publishing a research paper?

(04)

‘खण्ड-द’

Section-D

4. दीर्घोत्तरीय प्रश्न (शब्द सीमा 500–600 शब्द) दिये गये पाँच प्रश्नों में से किन्हीं तीन प्रश्नों के उत्तर दीजिए।

Long answer type questions (word limit – 500-600 words) Attempt any three questions out of five given below. (11 x 3 = 33)

- (i) शोध की विभिन्न पद्धतियों पर प्रकाश डालिए |
Highlight various methods of research.
- (ii) शोध-नैतिकता क्या है? शोध-नैतिकता के वैशिष्ट्य पर प्रकाश डालिए |
What is research ethics? Highlight the salient features of research ethics.
- (iii) शोध-प्रारूप किसे कहते हैं? शोध प्रारूप के विभिन्न अंगों पर प्रकाश डालिए |
What is a research design? Explain the various components of a research design.
- (iv) ‘शोध कार्य में कंप्यूटर की भूमिका’ विषय पर निबंध लिखिए |
Write an essay on the topic ‘Role of computer in research work’.
- (v) शोध के विभिन्न उपकरणों और उनके महत्व पर विस्तृत टिप्पणी कीजिये |
Comment in detail on various tools of research and their importance.

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