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M.Sc. (Ist Semester) Examination, 2021

ZOOLOGY

(Systematic Biodiversity and Evolution)

Time Allowed : Three Hours

Maximum Marks : 70

Minimum Pass Marks : 28

Note : The question paper is divisible into four sections like A, B, C and D. Section A and B have 10 marks each and Section C and D have 20 and 30 marks. Attempt questions as instructed in each section.

SECTION - A

Note : Attempt any 10 questions. Each question carries one mark. **1×10=10**

Q. 1. Fill in the blanks :

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(2)

- (1) Theory of germplasm was given by _____.
 - (2) During embryonic period animals repeat embryonic stage of ancestor, this law is called _____.
 - (3) Mesozoic era is called also the age of _____.
 - (4) Life originate in _____ Era.
- Objective question :
- (5) DNA is also present in this cell organism :
 - (a) Golgi body
 - (b) Lysosome
 - (c) Mitochondria
 - (d) Cell wall

(3)

- (6) Prokaryotic genetic system contain :
- (a) DNA and Histones
 - (b) Either DNA or Histones
 - (c) DNA but no Histones
 - (d) Neither DNA nor Histones
- (7) Viruses are formed of :
- (a) DNA & protein
 - (b) DNA and RNA
 - (c) Protein, DNA and RNA
 - (d) Protein, DNA or RNA
- (8) Study of improvement of human race by means of principles of genetics :
- (a) Eugenics
 - (b) Euthenics

(4)

- (c) Euphenics
 - (d) Genetics
- (9) Geology and Zoology are intimately connected in :
- (a) Archaeology
 - (b) Palaeontology
 - (c) Sociology
 - (d) Zoogeography
- (10) Characteristics which was not in the direction of evolution of man is :
- (a) Binocular vision
 - (b) Browridges
 - (c) Shortening of jaw
 - (d) Prehensile tail

(5)

(11) Which era could be called the "age of birds"

and age of mammalia :

- (a) Mesozoic
- (b) Coenozoic
- (c) Palaeozoic
- (d) Cretaceous

SECTION - B

Note : Attempt any five questions. Each question carries

2 marks, in 25-30 words.

5×2=10

Q. 2. (1) What is coacervates ?

(2) Define the natural selection.

(3) What are species and sub species ?

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(6)

(4) What is cell theory ?

(5) What is DNA duplication ?

(6) What is Deme ?

(7) What are the characters of "Homo sapiens
futuris".

SECTION - C

Note : Attempt any five questions. Each question carries

four marks. (Words 250).

5×4=20

Q. 3. (1) Write about evolution of molecular biology.

(2) Explain it that life originate from R.N.A.

(3) Explain the role of plasmid in DNA transfer.

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(7)

- (4) Write about evolution of eukaryotic cell from prokaryotics.
- (5) What is gene duplication ? Explain it.
- (6) What is taxonomic diversity and its types.
- (7) Explain diversification in Biodiversity.

SECTION - D

Note : Attempt any three questions Each question carries 10 marks. (Words 500). **10×3=30**

- Q. 4.** (1) Describe the mechanism of origin of species.
- (2) Explain the genetic basis of evolution and write about "Hardy Weinberg Law" of equilibrium.

(8)

- (3) Describe the origin and diversification of bacteria with example.
- (4) What is organic evolution explain it with different experiments.



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M.Sc. (Ist Semester) Examination, 2021

ZOOLOGY

(Principles of Ecology)

Time Allowed : Three Hours

Maximum Marks : 70

SECTION - A

(Objective Type Questions)

Note : Attempt any ten questions. Each question carries one mark. **1×10=10**

Q. 1. Fill in the blanks :

- (i) Synecology is the study of _____.
- (ii) Pond is an example of _____.
- (iii) "Ozone Day" is observed on _____.
- (iv) Father of biodiversity is _____.
- (v) World summit on sustainable development (2002) was held in _____.
- (vi) Who gave the terms "Autecology" and "Synecology" ?
 - (a) A.G. Tansley
 - (b) Karl Mobius

(2)

- (c) Schroter and Kirchner
- (d) A.V. Humboldt
- (vii) A thin layer of ozone is present in :
 - (a) Troposphere
 - (b) Stratosphere
 - (c) Stratopause
 - (d) Mesosphere
- (viii) Which of the following is the most stable ecosystem ?
 - (a) Desert
 - (b) Forest
 - (c) Ocean
 - (d) Mountain
- (ix) Greenhouse effect is related to :
 - (a) Grasslands
 - (b) Global warming
 - (c) Greenery in country
 - (d) Green trees on house
- (x) Which of these is an in-situ method of conservation ?
 - (a) National park
 - (b) Botanical garden
 - (c) Tissue culture
 - (d) Genetic engineering

(3)

- (xi) Red Data Book provides data on :
- (a) Red eyed birds
 - (b) Red flowered plants
 - (c) Red coloured fishes
 - (d) Endangered plants and animals
- (xii) BOD stands for :
- (a) Biotic oxidation demand
 - (b) Biochemical organic decay
 - (c) Biological organisms death
 - (d) Biochemical oxygen demand

SECTION - B

(Very Short Answer Type Questions) (25-30 words)

Note : Attempt any five questions. Each question carries 2 marks. **5×2=10**

- Q. 2.** (i) Define the term population.
(ii) Explain commensalism.
(iii) Define biogeochemical cycle.
(iv) Describe food webs.
(v) What are biomarkers ?
(vi) What do you mean by endemic species ?
(vii) What is molecular ecology ?

SECTION - C

(Short Answer Type Questions) (250 words)

Note : Attempt any five questions. Each question carries 4 marks. **5×4=20**

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(4)

- Q. 3.** (i) Describe limits of population growth.
(ii) Explain evolutionary ecology.
(iii) Describe nature of ecosystem.
(iv) What do you mean by global warming ?
(v) Discuss role of pesticides in agriculture.
(vi) Explain in ex-situ conservation of biodiversity.
(vii) Describe phylogeography.

SECTION - D

(Long Answer Type Questions) (More than 500 words)

Note : Attempt any three questions. Each question carries 10 marks. **3×10=30**

- Q. 4.** (i) Give an account of competition and coexistence with appropriate examples.
(ii) Write an essay on environmental stresses and their management.
(iii) Discuss genetic analysis of single and multiple population.
(iv) Discuss bioremediation of chemical in detail.

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M.Sc. (Ist Semester) Examination, 2021

ZOOLOGY

**(Computational Biology, Biostatistics &
Bioinformatics)**

Time Allowed : Three Hours

Maximum Marks : 70

SECTION - A

Note : Attempt any ten questions. Each question carries
one mark. **1×10=10**

Q. 1. Objective type questions :

- (i) Data is divided into qualitative and _____
data.
- (ii) The middle most value of a set of ranked
observation is _____.

(2)

- (iii) The highest frequency of observation of a
data set is known as _____.
- (iv) Dependent and independent variable is used
in _____ analysis.
- (v) Pie diagram is mostly used to represent :
- (a) Population census data
 - (b) Shoot length data
 - (c) Root length data
 - (d) None of the above
- (vi) Full form of RAM is :
- (a) Repeatative access memory
 - (b) Random access memory
 - (c) Robust access memory
 - (d) Role access memory
- (vii) MS-Excel is mainly used for :
- (a) Calculating data
 - (b) Preparing graphs

(3)

(c) Representation of data set

(d) All of the above

(viii) BLAST is an example of :

(a) Amino acid sequence database

(b) Protein sequence database

(c) Polysaccharide sequence database

(d) Fatty acid sequence database

(ix) Primer is used in initiation of _____

synthesis :

(a) DNA

(b) Polypeptide

(c) Lipid

(d) Fat

(x) Slide preparation is done in :

(a) Power point

(4)

(b) Excel

(c) Word

(d) Office

(xi) Root length can be best expressed in :

(a) Column diagram

(b) Line diagram

(c) Pie chart

(d) All of the above

(xii) OS in computer refers to :

(a) Operation system

(b) Operating unit

(c) Operating system

(d) Output system

SECTION - B

Note : Attempt any five questions. Each question carries 2 marks. **5×2=10**

(5)

Q. 2. Very short answer type (25-30 words) :

- (a) Differentiate between primary and secondary data.
- (b) Define the term application software.
- (c) Write the relationship between mean, median and mode.
- (d) What is data mining ?
- (e) What is BLAST ?
- (f) Mention the importance of regression coefficient.
- (g) Define the term hypothesis.

SECTION - C

Note : Attempt any five questions. Each question carries 4 marks. **5×4=20**

Q. 3. Short answer type questions (250 words) :

- (a) What are the basic components of MS Office ?

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(6)

- (b) Mention the importance of computational biology in bioinformatics.
- (c) Write a short note on ligplot.
- (d) Define the term population in biostatistics.
Add a note on application of biostatistics.
- (e) Why correlation study is important ? Add a note on importance of correlation coefficient.
- (f) What is conditional probability ? Explain mutually exclusive event.

SECTION - D

Note : Attempt any three questions. Each question carries 10 marks. **3×10=30**

Q. 4. Essay type (more than 500 words) :

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- (a) What is frequency distribution? Explain it with a suitable example. Add a note on representation of data.
- (b) Define the term biological database. Provide a brief illustration about different form of nucleic acid databases.
- (c) Give a short description about different prediction tools of protein structure. Add a note on molecular modeling.
- (d) Briefly explain addition and multiplication rules of probability. Add a note on regression analysis.

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M.Sc. (Ist Semester) Examination, 2021
ZOOLOGY
(Entomology - Pest Ecology & Agricultural Entomology)

Time Allowed : Three Hours

Maximum Marks : 70

SECTION - A

Note : Attempt any 10 questions. Each question carries one mark. **1×10=10**

Q. 1. Fill in the blanks :

- (i) Clipping in integrated pest management is a _____ method.
- (ii) Antibiosis refers to the process of _____ resistance to pest attack.
- (iii) Quarantine refers to method of _____.
- (iv) Toxin produced by *Bacillus thuringiensis* is known as _____.

(2)

Multiple choice type :

- (v) The pheromone coated paper strips in the confusion technique are thrown over an area to :
 - (a) Confuse males so that they are unable to locate females
 - (b) Repel insects from a region
 - (c) Confuse females so that they are unable to locate males
 - (d) Attract insects and kill them
- (vi) Rotenone is a :
 - (a) Insect hormone
 - (b) Natural insecticide
 - (c) Bioherbicide
 - (d) Natural herbicide

(3)

(vii) Pyrethrin is extracted from :

- (a) Poa indica
- (b) Helianthus annuus
- (c) Azadirachta indica
- (d) Chrysanthemum cinerariifolium

(viii) This is an effective plant insecticide :

- (a) Nicotine
- (b) Cinerin
- (c) Pyrethrin
- (d) All of these

(ix) Quarantine of an insect pest involves :

- (a) Eradication of the pest
- (b) Limit the movement of the pest
- (c) Cooperation of the public
- (d) Both (b) and (c)

(4)

(x) Which one of the following is a fumigant insecticide ?

- (a) Monocrotophos
- (b) Endosulphan
- (c) Carbaryl
- (d) Dichlorvos

(xi) Insects that are presently not causing any economic damage are called :

- (a) Regular pest
- (b) Sporadic pest
- (c) Potential pest
- (d) Minor pest

(xii) The pest that is confined to a particular area and occurs regularly the infestation is called :

(5)

- (a) Pandemic
- (b) Epidemic
- (c) Endemic
- (d) None

SECTION - B

Note : Attempt any five questions. Each question carries
2 marks. **2×5=10**

Q. 2. Very short answer type (25-30 words) :

- (i) Define the term pest.
- (ii) What is pheromone ?
- (iii) What do you mean by economic threshold ?
- (iv) Define the term transgenic plants.
- (v) What do you mean by recombinant DNA technology ?
- (vi) What is MH antagonist ?
- (vii) What is antixenosis ?

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(6)

SECTION - C

Note : Attempt any five questions. Each question carries
4 marks. **5×4=20**

Q. 3. Short answer type (250 words) :

- (i) Biological control of pest.
- (ii) Pest surveillance.
- (iii) Locust migration.
- (iv) Secondary pest outbreak
- (v) JH Mimics
- (vi) Antibiosis
- (vii) Development of Bt plant by recombinant
DNA technology.

SECTION - D

Note : Attempt any three questions. Each question
carries 10 marks. **3×10=30**

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Q. 4. Essay type (more than 500 words) :

- (i) Briefly state the various models of pest population growth. Add a note on pest complex.
- (ii) What is IPM? Provide a brief illustration about the various methods of pest control under I.P.M.
- (iii) Give an account of resistance management of Bt crop. Comment on prospective and controversies of Bt crop.
- (iv) Give a short account of major pest and their biology, nature of damage and control measures of pest of cereals.

Pages 1 to 5

G-1111C

M.A./M.Sc./M.Com./M.S.W. (I- Semester) Examination, 2021
(Research Methodology and Computer Applications: Basics)

Time Allowed: Three Hours

Maximum Marks: 70

Section-A

Note: Attempt any ten questions. Each question carries one mark.

किन्हीं दस प्रश्नों के उत्तर दें. प्रत्येक प्रश्न एक अंक का है.

Q.I Objective type questions:

(Max Marks - 10)

बहुविकल्पीय प्रश्न :

1. Hypothesis means
परिकल्पना का अर्थ है
2. The first step in starting a research is
शोध प्रारंभ करने का पहला कदम है
3. ICSSR stands for
ICSSR का अर्थ (पूरा नाम) है
4. Case study is atype of research.
वृत्त का अध्ययन प्रकार का शोध है
5. A web page is made of tags.
एक वेब पेज टैग्स से बना होता है
6. The following has highest Access time:
निम्न में से सर्वाधिक एक्सेस टाइम (अभिगम काल) किसका है
 - a. Magnetic disk (चुम्बकीय डिस्क)
 - b. Swapping devices (स्वैपिंग उपकरण)

(2)

- c. Floppy disk (फ्लॉपी डिस्क)
d. Cache (काचे)
7. Empirical Research is related to –
अनुभवजन्य अनुसन्धान किस से सम्बंधित है -
- a. Pure logic (शुद्ध तर्क)
b. Observation (अवलोकन)
c. Critical thinking (आलोचनात्मक चिंतन)
d. Theory (सिद्धांत)
8. Depth of research can be judged by-
शोध की गहराई का आंकलन निम्न से किया जा सकता है -
- a. By title (शीर्षक)
b. By researcher (शोधकर्ता)
c. By its objectives (उद्देश्य)
d. By expenditure (व्यय)
9. A question that requires solution is-
वह प्रश्न जिसे हल करने की आवश्यकता हो-
- a. Observation (अवलोकन)
b. Data (आंकड़े)
c. Problem (समस्या)
d. Experiment (प्रयोग)
10. Survey is a type of study-
सर्वेक्षण एक प्रकार का अध्ययन है
- a. Systemic (व्यवस्थित)
b. Fact finding (तथ्यान्वेषी)
c. Descriptive (वर्णनात्मक)
d. Analytical (विश्लेषणात्मक)
11. Brain of computer is –
कंप्यूटर का मस्तिष्क है -
- a. ALU (ए एल यू)
b. CPU (सी पी यू)
c. Monitor (मॉनिटर)
d. None (कोई भी नहीं)
12. Personal computers can be connected to form –
निजी कंप्यूटरों को आपस में जोड़ने से क्या बनता है-

(3)

- | | |
|----------------------|-----------------------|
| a. Network (नेटवर्क) | c. Enterprise (उद्यम) |
| b. Cluster (क्लस्टर) | d. Server (सर्वर) |

13. Computers are used to convert data into –

कंप्यूटर का इस्तेमाल डाटा को किसमे परिवर्तित करने के लिए किया जाता है-

- | | |
|-------------------|--------------------------|
| a. Table (टेबल) | c. Information (जानकारी) |
| b. Graphs (ग्राफ) | d. Files (फाइल्स) |

Section B

Note: Attempt any five questions. Each question carries two marks.

किन्हीं पांच प्रश्नों के उत्तर लिखें. प्रत्येक प्रश्न के दो अंक हैं.

Q.II Very short answer type questions. Answer in 25-30 words. (Max Marks-10)

संक्षिप्त टिपणी लिखें (२५-३० शब्द):

1. Historical research (ऐतिहासिक शोध).
2. Interview (साक्षात्कार).
3. Central Processing Unit (सेंटरल प्रोसेसिंग इकाई).
4. Data coding (डाटा कोडिंग).
5. Control panel (कण्ट्रोल पैनल).
6. Paint brush (पेंट ब्रश).
7. Workbooks (वर्कबुक).

(4)

Section C

Note: Attempt any five questions. Each question carries four marks.

किन्हीं पांच प्रश्नों के उत्तर लिखें. प्रत्येक प्रश्न के चार अंक हैं.

Q.III Short answer type questions. Answer in 250 words (Max Marks-20)

संक्षिप्त टिपण्णी (२००-२५० शब्द)

1. Types of variables (चर के प्रकार).
2. Methods of research (शोध की पद्धतियाँ).
3. Sections of report (रिपोर्ट के भाग).
4. Non probability sampling (गैर संभावित प्रतिचयन).
5. Output devices (आउटपुट उपकरण).
6. Windows accessories (विंडोज एक्सेसरीज).
7. MS Power Point (MS पाँवर पॉइंट).

Section D

Note: Attempt any three questions. Each question carries ten marks.

किन्हीं तीन प्रश्नों के उत्तर लिखें. प्रत्येक प्रश्न के दस अंक हैं.

Q.IV Essay type questions. Answer in 500 words. (Max Marks-30)

दीर्घ उत्तरीय प्रश्न (500 शब्द)

1. Explain the types of research and steps involved in research process.
शोध के प्रकार एवं शोध प्रक्रिया को विस्तार से समझाएं.

(5)

2. Discuss in detail the different sampling techniques.

प्रतिचयन की विभिन्न तकनीकों का वर्णन करें.

3. Discuss the steps in data treatment.

डाटा ट्रीटमेंट की प्रक्रिया का वर्णन करें.

4. Explain the functions of Windows accessories.

Windows एक्सेसरीज के कार्यों का वर्णन करें.

5. Discuss the features of spreadsheet.

स्प्रेडशीट की विशेषताएँ बतलाइये.