# 0305E324

Candidate's Seat No :_____

M.Sc. (Sem.-II) Examination

407

Zoology

Time : 3 Hours] May-2017 [Max. Marks : 70

NB: All questions are compulsory.
Illustrate your answers with neat diagrams wherever necessary

| | | |
|---|---|---|
| Q-1 (A) | Write a detailed account on formation of 30nm chromatin fiber. | (07) |
| OR (A) | Give an account on classification and properties of histone proteins. | |
| (B) | Write an answer on Interrupted genes. | (07) |
| OR (B) | What are jumping genes? Explain. | |
| Q-2 (A) | What is non-mendelian inheritance? Explain anyone non-mendelian inheritance type giving examples. | (07) |
| OR (A) | Write a note on mutagenesis. | |
| (B) | Explain maternal inheritance in *Mirabilis jalapa.* | (07) |
| OR (B) | Write a note on eukaryotic DNA replication. | |
| Q-3 (A) | What is polyploidy? Explain. | (07) |
| OR (A) | Write an account on human trisomy syndromes. | |
| (B) | What is multifactorial inheritance? Explain giving examples. | (07) |
| OR (B) | Write an answer on Tumor suppressor genes. | |
| Q-4 (A) | Explain with diagram: *lac* operon is a negative inducible operon. | (07) |
| OR (A) | Write a detailed account on enzymes used in recombinant DNA technology. | |
| (B) | Discuss the repressor – operator control system for *trp* operon. | (07) |
| OR (B) | Write applications of genetic engineering. | |
| Q-5 | Answer the following: (One Mark Each) | (14) |
| (1) | What are SINEs? | |
| (2) | What is moderately repetitive DNA? | |
| (3) | What is missense mutation? | |
| (4) | Define inversion. | |
| (5) | What is Robertsonian translocation? | |
| (6) | Define Isochromosome. | |
| (7) | Give one example of an inborn Error of metabolism. | |
| (8) | What is transgenic organism? | |
| (9) | Write two properties of non-histone proteins. | |
| (10) | Give examples of the site where nucleosome position are fixed. | |
| (11) | Inactive X chromosome in mammalian female is an example of which type of heterochromatin? | |
| (12) | What is reciprocal cross? | |
| (13) | What is inducible operon? | |
| (14) | Define genetic engineering. | |

# 0505E373

Candidate's Seat No : _____

**M.Sc. (Sem.-II) Examination**

**408**

**Zoology**

**May-2017**

**Time : 3 Hours]** **[Max. Marks : 70**

**NB:** All questions are compulsory.
Illustrate your answers with neat diagrams wherever necessary

| | | | |
|---|---|---|---|
| Q-1 | (A) | Describe the electromagnetic spectrum and various forms of radiation. | (07) |
| OR | (A) | Discuss units and measurement of radiation by scintillation counters. | |
| | (B) | Explain the properties, types and varied diagnostic uses of X-Rays. | (07) |
| OR | (B) | Describe the characteristics, uses and effects of Radiofrequency radiation. | |
| Q-2 | (A) | Give examples to explain differential radiosensitivity. Add a note on Radio-sensitizing agents. | (07) |
| OR | (A) | Explain in detail: Radiation at very low doses is beneficial. | |
| | (B) | Explain the impact of radiation on the digestive and haemopoietic system. | (07) |
| OR | (B) | Discuss Radiation based diagnostics and Radiation therapy for cancer. | |
| Q-3 | (A) | Discuss sampling methods and errors in biostatistics. | (07) |
| OR | (A) | State the various measures of dispersion. Determine the % CV and SE of the data obtained for body weights of 9 patients: | |

| Body wt. (kg) | 56.0 | 63.5 | 59.0 | 60.5 | 60.0 | 65.0 | 55.0 | 62.0 | 58.5 |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (B) | Write an account on Data collection, types and organization. | | | | | | | (07) |
| OR | (B) | What are the measures of Central tendency? Calculate these measures for the data: | | | | | | | |

| Protein (mg/ml) | 10.5 | 9.2 | 12.4 | 10.4 | 10.5 | 9.8 | 10.4 | 10.5 | 12.5 |
|---|---|---|---|---|---|---|---|---|---|

.....[P.T.O.].....

**Q-4 (A)** Write a detailed account on Probability and its applications. (07)

**OR (A)** Discuss: Correlation. Calculate the Pearson's correlation co-efficient between X and Y in the given data:

| Conc. of drug (µg/ml) X: | 0.2 | 0.4 | 0.5 | 0.7 | 0.9 | 1.0 | 1.2 | 1.5 |
|---|---|---|---|---|---|---|---|---|
| Cell viability (%) Y: | 78 | 76 | 75 | 72 | 68 | 65 | 63 | 58 |

**(B)** Explain 'Tests of Hypothesis'. Add a note on ANOVA. (07)

**OR (B)** Use a suitable test of Hypothesis to determine whether the data of control and patient groups are statistically significant or not. Add a note on the test used.

| Group | Calcium (mg/dl) |
|---|---|
| Control (n=9) | 7.8 ± 0.5 |
| Patients (n=9) | 18.0 ± 1.6 |

**Q-5** Answer the following: (One Mark Each) (14)

(1) Give two uses of Radiactive isotopes in Biology.

(2) Write the reaction for Decay by β emission.

(3) Write 2 examples of Radioprotective agents.

(4) What is meant by Molecular Radiation syndrome?

(5) Calculate SE if $\sigma = 2.4$; $\bar{X} = 48$ and $n = 16$.

(6) Write the formula for Mean, if data is grouped with continuous class intervals.

(7) Mention 2 effects of UVA.

(8) For a positively skewed distribution, Mean _____ Median _____ Mode.

(9) What is SAR? Limit value of SAR for mobile phone is_____.

(10) If data is in frequency from, the suitable Test of Hypothesis would be _____.

(11) Define: Degree of Freedom.

(12) Define Electrosmog?

(13) What software is commonly used for ANOVA?

(14) Define: Parametric Data.

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# 0805E423

Candidate's Seat No :_____

M.Sc. (Sem.-II) Examination

409

Zoology

Time : 3 Hours] May-2017 [Max. Marks : 70

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|---|---|---|
| Time: 3 hours | | Max. Marks: 70 |
| NB: | All questions are compulsory.<br>Illustrate your answers with neat diagrams wherever necessary | |
| Q-1 (A) | Describe immunity TCRs. | (07) |
| OR (A) | Write an essay on "Cell mediated immune response" | |
| (B) | Give an account on cytokines. | (07) |
| OR (B) | Explain precipitation reactions in gels. | |
| Q-2 (A) | Explain immediate type hypersensitivity reactions. | (07) |
| OR (A) | Give brief note on treatment in Gouty arthritis. | |
| (B) | Give brief note on histamine receptors. | (07) |
| OR (B) | Write an assay on "Processing exogenous Ag". | |
| Q-3 (A) | Explain in detail different types of toxicities. | (07) |
| OR (A) | Give a detailed account of absorption and distribution of toxicants. | |
| (B) | Explain agents that influence toxicity. | (07) |
| OR (B) | Discuss toxicants of plant origin. | |
| Q-4 (A) | Describe sources, effect, and treatment of cyanide poisoning. | (07) |
| OR (A) | Describe toxicant induced neuronopathies in detail. | |
| (B) | What is cholestasis? Describe toxicant induced cholestasis in detail. | (07) |
| OR (B) | Describe toxicant induced cardiomyopathies. | |
| Q-5 | Answer the following: (One Mark Each) | (14) |
| (1) | Explain monoclonal antibody. | |
| (2) | Mention tumor antigens. | |
| (3) | What is epigenetics? | |
| (4) | Define pernicious anemia. | |
| (5) | Explain autoimmunity. | |
| (6) | Define cross reactivity. | |
| (7) | How does PPD test work? | |
| (8) | What is cirrhosis? | |
| (9) | What is amygdalin? | |
| (10) | Write full form of OECD. | |
| (11) | Define hypoxia | |
| (12) | What is biotransformation? | |
| (13) | Name two occupational agents causing pulmonary damage. | |
| (14) | Define arrhythmia. | |

# 1005E464

Candidate's Seat No :_____

M.Sc. (Sem.-II) Examination

410

Zoology

Time : 3 Hours] May-2017 [Max. Marks : 70

NB: All questions are compulsory.
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| | | |
|---|---|---|
| Q-1 (A) | Explain the territorial behaviour with suitable examples. | (07) |
| OR (A) | Describe taxis with suitable examples. | |
| (B) | Give an account of Social behavior. | (07) |
| OR (B) | Explain the biological clocks. | |
| | | |
| Q-2 (A) | Give an account on the various aspects of social organization. | (07) |
| OR (A) | Explain obsessive compulsive disorder (OCD). | |
| (B) | Discuss the various fixed action patterns shown by the animals. Give suitable examples. | (07) |
| OR (B) | Explain in brief the various types of animal communication. Add a note on echolocation in bats. | |
| | | |
| Q-3 (A) | Write an essay on "postulates of Darwinism". | (07) |
| OR (A) | Explain Hardy-Weinberg law. | |
| (B) | Give an account on Greek theories. | (07) |
| OR (B) | Explain various types of mutations. | |
| | | |
| Q-4 (A) | Describe Mesozoic era. | (07) |
| OR (A) | Explain polymorphism. | |
| (B) | Explain macro and micro evolution. | (07) |
| OR (B) | Discuss cursorial and aquatic adaptations. | |
| | | |
| Q-5 | Answer the following: (One Mark Each) | (14) |
| (1) | What is agonistic behavior? | |
| (2) | What is echoic and iconic memory? | |
| (3) | What is thigmokinesis? Give an example. | |
| (4) | Define habituation. | |
| (5) | What is avoidance learning? | |
| (6) | What is spontaneous recovery? | |
| (7) | What is kinaesthetic intelligence? | |
| (8) | What is genetic drift? | |
| (9) | What is contribution of Lamarck? | |
| (10) | Which primitive plant came into existence very first during evolution? | |
| (11) | What is eon? | |
| (12) | What is adaptation? | |
| (13) | Define breeder. | |
| (14) | Explain "Special creation theory" in evolution. | |