M.Sc. ZOOLOGY SEMESTER-II

ZOL C 2O1: PHYSIOLOGY

Answer in short:-

1. What is the function of epiglottis.
2. What is diaphragm.
3. Name the instrument used of measuring blood pressure? What is normal value of it.
4. What is the saltatory conduction.
5. What is the reflex arc.
6. How many spinal nerve are found in humans.
7. Distinguish between cerebellum and cerebrum.
8. State whether humans use rod cells or cone cells for vision during the day Write about them.
9. How does the menstrual cycle occurs.
10. What is the sarcolemma.

Answer in Long:-

1. Give an account of the transport of respiratory gases .
2. Draw the structure of neuron and discuss the mechanism of synaptic transmission .
3. Discuss the role of hormones secreted by adrenal gland .
4. Write short note on any two :-
   a. Neuro secretion
   b. Islet of Langerhans
   c. Action Potential
5. Describe the sliding filament theory of muscle contraction in muscles .
6. Describe the structure and function of ears .
7. Describe the meditation, yoga and their effects .
8. Distinguish between :-
   a. Hibernation and aestivation
   b. Ectotherm and endotherms
   c. Hypothermia and hyperthermia

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ZOL C202: MOLECULAR BIOLOGY

Answer in short:-

1. Clover leaf model for t-RNA.
2. Suppressor t-RNA.
3. Palindromic sequence.
4. Linking number.
5. Ribozyme .
6. Okazaki fragments.
7. Shine –dalgarno sequence.
8. RNA-Primer .
9. Pribnow Box and TATA Box .
10. Wobble pairing .

Answer in Long:-

1. Give a detailed account on DNA polymerases and accessory proteins involved in prokaryotic DNA replication.
2. Write short notes on any two: –
   (a) Genetic code
   (b) Solenoid model for DNA packing
   (c) Rec BCD Pathway
3. Describe   prokaryotic transcription in detail.
4. Describe DNA repair mechanisms (any three) in detail.
5. Describe the mechanisms of attenuation in tryptophan operon.
6. Describe the two in brief: –
   a.   RNA editing
   b.   Polyadenylation
   c.   Telomerase and its role in end replication
7. Write short note on :-
   a. Elongation process of translation in prokaryotes
   b. Antibiotic inhibitors of protein synthesis
8. Describe site specific recombination with example of lox- cre recombination .
9. Describe the difference between – (any three)
   a. Corepressor and repressor   b. Operator and promoter

b. Enhancer and silencer element

d. Cis-aeting element and trans acting

d. A, B and Z DNA

f. Denaturation and Renaturation of DNA

10. Explain the DNA repair mechanism- MMR and SSO repair.

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ZOL C203: BIOSTATISTICS

Answer in short:-

1. Define Biostatistics .
2. Write the difference between exclusive method and inclusive method of table framing .
3. What are the methods of Representation of Statistical Data .
4. Write two advantages of graphical representation .
5. Mention formula applied to calculate Median for individual data, discrete series and continuous series .
6. What do you mean by dispersion or variability . Give the name of different types of dispersion studied by you .
7. Define simple and compound event with suitable example .
8. Write formula for Z test .
9. Define degree of freedom .
10. What is the difference between types 1 error and types II error .

Answer in Long:-

1. Draw a cumulation frequency curve with the help of data mentioned in the following table :

Class-Interval	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
Frequency	3	14	21	25	40	40	47	50

2. What do you mean by Deviation .Calculate Mean deviation of following data obtained in two experiments:-
   (i)   Water percentage of Body of 15 Fishes of a species :
          62, 62, 63, 64, 67, 68, 71, 72, 71, 69, 68, 64, 62, 66, 68
   (ii)   Water percentage of Body of 11 Fishes of a species :
          60, 72, 81, 5, 70, 72, 78, 66, 55, 58, 90.
3. In a biological experiment following continuous series was obtained .Find out the Harmonic mean and mode of the series :-

Class interval	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Frequency	6	4	6	9	12	15	10	8	4	1

4. Define probability. Discuss different types of probability with suitable example.

5. Define and explain Arithmetic mean, Geometric mean and Harmonic mean. Mention merits and demerits of each measure.

6. Write short note on any three :-
   A) Averages of Position
   B) Application and uses of Biostatistics
   C) Calculate the S.D. of the following distribution :

Variable	5	10	15	20	25	30	40	45	50	60
Frequency	2	4	6	6	10	10	10	6	4	2

   D) Skewness and Kurtosis

7. Write notes on:-
   (a) Null hypothesis and alternative hypothesis
   (b) Level of Significance

8. A drug given to each of the 10 persons resulted in the following changes in the blood pressure from normal 4.2, 4.6, 3.9, 4.1, 5.2, 3.8, 3.9, 4.3, 4.4, 5.6 .Calculate by Student's 't' test whether changes is significant or not.

9. Define the term Standard Deviation with the help of suitable example. Show the method of calculating it. What are its merits and demerits?

10. If twins are born once in 80 different Pregnancies, then find out p of Rh^+ for birth of twins.

M.Sc. ZOOLOGY SEMESTER-II

ZOL E2O1: IMMUNOLOGY

Answer in short:-

1. What do you understand by Innate Immunity .
2. What are NK cells .
3. Name the lymphocytes involved in Humoral Immunity .
4. Name the three antigen presenting cells (APCs).
5. Name the different types of T- Cells .
6. Define Agglutination reaction .
7. What do you mean by complement system.
8. Write about Di George Syndrome.
9. Which antibody is present in Saliva and Tears.
10. What are Haptens.

Answer in Long:-

1. Give the difference between Humoral and cell mediated immunity .Explain with help of flow charts .
2. What are MHC ? Discuss the two pathways followed by MHC .
3. Write short notes on :-
    a. T cells and B cells maturation/ activation
    b. Immunity
4. What is epitope? Describe different factors which influence the immunogenicity of an antigen.
5. Explain the structure of Antibody.
6. What is hypersensitivity? Describe any two types of hypersensitivity.
7. Write an account on primary lymphoid organs. Emphasize how they are responsible for generation of adaptive immune response.
8. Write about: –
    a. Neutrophil   deficiencies
    b. X-linked Agammaglobulenemia
9. Explain Endogenous and Exogenous pathway of antigen presentation.
10. What is complement system? Explain in detail.

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ZOL E202 : Wild life ,Its Management and Conservation

Answer in Short:-

1. Write about Red data book .
2. What is IUCN.
3. Explain the term animal census .
4. What are endangered species .
5. Explain wild life Hot spots and Hope spots .
6. Write the measures adopted by government to protect wildlife .
7. Explain ex-situ gene-pool conservation .
8. Write down the measures adopted by government to control illegal trade of wildlife.
9. Give name of two wildlife sanctuary in India .
10. Write a short note on amendments in wildlife protection Act 1972 .

Answer in Long:-

1 . Give a detailed account on National park , Sanctuaries and Biosphere reserves .

2 . Discuss the IUCN classification of species .

3. Describe the techniques to study wild life .

4 . Write short notes on :-

   A) Project Lion
   B) Project Rhino

5. Explain the use of Biotechnology in wildlife conservation .

6. Give a detailed account of wildlife protection Act 1972.

7. Write down the measures adopted for the management of special habitats.

8. Define Indices and explain few commonly used indices.

9. Explain ex-situ and in-situ conservation.

10. Enlist various measures adopted by government to protect endangered species of India.