

**M.Sc. ZOOLOGY**  
**FOURTH SEMESTER**  
**ANIMAL PHYSIOLOGY & BIOCHEMISTRY**  
**MSZ - 402E**

( Use Separate Answer Scripts for Objective & Descriptive )

Duration : 3 hrs.

Full Marks : 70

( PART-A: Objective )

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

- Select the template which is used in Real time PCR
  - dsDNA
  - ssDNA
  - Plasmid
  - RNA
- Which one of the following is a vector from recombinant DNA?
  - Restriction endonuclease
  - Ligase
  - Plasmid
  - All of them
- cDNA is synthesized from
  - dsDNA
  - rRNA
  - Peptide chain
  - mRNA
- Which of the following molecule can be detected by ELISA?
  - Antibodies
  - Hormones
  - Enzymes
  - All of them
- Select the neuroendocrine organ from the following?
  - Pineal
  - Hippocampus
  - Hypophysis
  - Hypothalamus
- The hormone 'leptin' is secreted by
  - Hepatocytes
  - Intestinal cells
  - Fat cells
  - None of them
- The G-protein is \_\_\_\_\_ in nature
  - Dimeric
  - Trimeric
  - Monomeric
  - Tetrameric
- Statement I: The adenyl cyclase include the cAMP second messenger system.  
Statement II: once cAMP is formed inside the cell it activates DAG
  - Statement I is true but statement II is false
  - Statement I is false but statement II is true
  - Both statement I and II are true
  - Both statement I and II are false
- Arrange the parts of fallopian tube serially
  - Fimbriae, Ampulla, Infundibulum, Isthmus
  - Fimbriae, infundibulum, Ampulla, Isthmus
  - Infundibulum, Fimbriae, Ampulla, Isthmus
  - Isthmus, Fimbriae, Ampulla, Infundibulum

10. Mode of transfer of lipids through placenta
  - a. By facilitated diffusion
  - b. By droplet formation
  - c. By active transport
  - d. By simple diffusion
11. The best-known acute stress response is
  - a. Flight or fight
  - b. Avoidance
  - c. Tolerance
  - d. Resistance
12. Which part is not present in limbic system for stress response?
  - a. Amygdala
  - b. Hippocampus
  - c. Hypothalamus
  - d. Pons
13. Select the wrong response during stress.
  - a. Respiratory rate increases
  - b. Vasoconstriction increases
  - c. Heart rate decreases
  - d. Insulin level decreases
14. Find out the correct physiological manifestation in various Systems during old age.
  - a. Lung functions increases with age
  - b. Blood vessels develop atherosclerosis
  - c. GFR increases
  - d. Increase in neuronal dendrites
15. Find out the systemic autoimmune diseases.
  - a. Hashimoto's Thyroiditis
  - b. Rheumatoid arthritis
  - c. Myasthenia gravis
  - d. Pernicious anaemia
16. Antigen produced by tumor cells are called.
  - a. Autoantigens
  - b. Native antigens
  - c. Immunoantigens
  - d. Neoantigens
17. What non-biochemical tests are done for analysis of ascitic fluid?
  - a. Cell counts
  - b. Bacterial cultures
  - c. Tumor markers
  - d. All of these
18. Select the correct level of enzymes during obstructive jaundice.
  - a. SGPT very high, SGOT normal, ALP normal, 5'NT very high
  - b. SGPT normal, SGOT normal, ALP very high, 5'NT very high
  - c. SGPT normal, SGOT very high, ALP very high, 5'NT normal
  - d. SGPT very high, SGOT very high, ALP normal, 5'NT normal
19. Which one of the following is secondary immunodeficiency disease?
  - a. Multiple myeloma
  - b. XMAN disease
  - c. GATA2 deficiency
  - d. Congenital neutropenia
20. Process of release of inflammatory molecules from mast cell is by
  - a. Phagocytosis
  - b. Phosphorylation
  - c. Degranulation
  - d. Extravasation



**(PART-B : Descriptive)**

Time : 2 hrs. 40 min.

Marks : 50

**[Answer question no.1 & any four (4) from the rest]**

1. Explain the molecular structure of antibody with diagrammatic illustration. 10
2. Write briefly on the following 5+5=10
  - a. Functions of cytokines
  - b. Mechanism of allergic reactions
3. Give a clear description of the involvement of various hormones involved in stress regulation in the body. 10
4. Mention different types of biological rhythms. Write how human body suffers when there is dysfunction of biological clock in the body. 2+8=10
5. Explain the mechanism of action of protein and steroid hormones in target cells. 5+5=10
6. What is the importance of contraception? Write about different means of contraception adopted by male and female individuals. 2+8=10
7. What is the need of post transcriptional modification of mRNA? Illustrate the events that nucleus adopts for processing of mRNA after its transcription. 2+8=10
8. Write brief note on 5+5=10
  - a. Principle and application of PCR
  - b. Principle and procedure of RIA

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