

M.Sc. ZOOLOGY
FOURTH SEMESTER
ANIMAL PHYSIOLOGY & BIOCHEMISTRY-III
MSZ-401 E

SET
A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

- Which one of the following is not a part of the heavy chain domain in the structure of antibody?
 - V_H
 - V_{H1}
 - C_{H1}
 - C_{H2}
- When a particular cytokine has different biological function on different target cells, it is called:
 - Pleotropy
 - Redundancy
 - Synergy
 - Antagonism
- Find out the symptom of allergic reaction.
 - Vasodilation
 - Mucous secretion
 - Smooth muscle spasm
 - All of these
- In Arthus reaction of hypersensitivity, lytic enzymes are released from:
 - RBC
 - Basophil
 - Neutrophil
 - Monocytes
- TSTA is a neo-antigen produced by:
 - Mast cell
 - Tumor cell
 - Goblet cell
 - Plasma cell
- Select the change that is not accompanied with the old age.
 - Decrease in glomerular filtration rate
 - Decrease in bone marrow activity
 - Loss of neurons in brain
 - Decrease in myocardial irritability
- The hormone responsible for pre migratory restlessness is:
 - Prolactin
 - Melatonin
 - Oxytocin
 - Vasopressin
- Genomic library construction is concerned with:
 - Gene isolation
 - Protein production
 - Antibiotics
 - Regeneration
- Which of the following introns have the capability of auto splicing?
 - Group I
 - Group II
 - Group III
 - Group IV
- On which sequencing method is Sanger sequencing method based?
 - Enzyme
 - Chemical
 - Isotope
 - None

11. The splice site is found in:
 - a. 3' end of exon
 - b. 5' end of intron
 - c. Within the exon
 - d. Within the intron
12. What is the primary purpose of genetic knockout in biological sample?
 - a. To amplify gene sequence
 - b. To delete entire genomes
 - c. To deactivate or study function of specific genes
 - d. To enhance gene expression
13. What is the primary method for achieving genetic knock out in animals like mice?
 - a. Protein over expression
 - b. CRISPR-cas 9 gene edition
 - c. RNS interference
 - d. Electroporation
14. From which amino acids, are amine hormones derived?
 - a. Phenylalanine
 - b. Tryptophan
 - c. Alanine
 - d. Tyrosine
15. Which hormones stimulate the production of secondary messengers?
 - a. Proteins
 - b. Steroid
 - c. Both a & b
 - d. None of the above
16. Which of this hypothalamic nucleus is involved in the regulation of circadian rhythm?
 - a. Supraoptic
 - b. Paraventricular
 - c. Suprachiasmatic
 - d. Ventromedial
17. 17-Hydroxylase catalyzes which of these reactions in steroidogenesis?
 - a. Pregnenolone to 17 α -hydroxy pregnenolone
 - b. Progesterone to 17 OH-progesterone
 - c. Both a & b
 - d. None of the above
18. Which of these statements is not true for G-protein?
 - a. Active G-alpha is bound to GTP
 - b. GTP displacement of GDP is facilitated by GAP
 - c. G_i deactivates adenylyl cyclase
 - d. G-protein has three subunits
19. Lipophilic hormone binds to:
 - a. Cytoplasmic receptor
 - b. Nuclear receptor
 - c. Both a & b
 - d. None of the above
20. The transfer of heat by the circulation of a fluid or gas is called:
 - a. Convection
 - b. Conduction
 - c. Sweating
 - d. Evaporation

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

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| 1. Define vaccine. Explain various types of vaccines that are used in vaccination. Add note on the other constituents added in vaccines to make them more effective. | 1+6+3=10 |
| 2. Describe different causes of autoimmunity. How are the autoimmune diseases classified? Write the mechanism of origin of any one of the autoimmune diseases in human body. | 6+2+2=10 |
| 3. Write about the stress response mechanism in animal body. Give brief account of the stress resistance process adopted by animals to compensate environmental challenges. | 5+5=10 |
| 4. What is post transcriptional processing? Describe mRNA processing method with proper example. | 2+8=10 |
| 5. What do you mean by molecular cloning? Describe different types of prokaryotic and eukaryotic vectors. Write about the method of molecular cloning in prokaryotes. | 2+4+4=10 |
| 6. What are the different classes of hormone receptors? Explain the mechanism of peptide hormone action with necessary illustration. | 4+6=10 |
| 7. Discuss the hypothalamus-pituitary-gonadal axis of hormone regulation. What do you mean by spermatogenic cycle? | 5+5=10 |
| 8. Write short notes on: (<i>any two</i>) | 5+5=10 |
| a) Sanger sequencing method | |
| b) Construction of cDNA library | |
| c) Physical and chemical contraception methods | |

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