**SET A**

# M.Sc. ZOOLOGY
## THIRD SEMESTER (SPECIAL REPEAT)
## ANIMAL PHYSIOLOGY & BIOCHEMISTRY-I
## MSZ-303 E

[USE OMR SHEET FOR OBJECTIVE PART]

**Duration: 3 hrs.** **Full Marks: 70**

**(Objective)**

**Time: 30 mins.** **Marks: 20**

***Choose the correct answer from the following:*** ***1×20=20***

1. Which of the following prevents platelet aggregation during antihaemostatis?
   a. Nitrous Oxide
   b. Heparin Sulphate
   c. Prostaglandin- $I_2$
   d. All of these

2. In ECG ventricular depolarization is indicated by:
   a. P-wave
   b. QRS-wave
   c. T-wave
   d. U-Wave

3. Conversion of angiotensin-I to angiotensin-II leads to:
   a. Vasoconstriction
   b. ADH secretion
   c. Stimulates thirst
   d. All of these

4. Which structure is mainly related with counter current exchanger mechanism of urinary system?
   a. Bowman's capsule
   b. Vasa Recta
   c. Ureter
   d. Urinary Bladder

5. A person suffers nitrogen necrosis, a respiratory stress during:
   a. Deep sea diving
   b. Dyspnoea
   c. Periodic breathing
   d. High altitude

6. Which one is not related with electrical events in the neurons?
   a. GHK-equation
   b. Nernst Equation
   c. Michaelis-Menten Equation
   d. Donnan Equillibrium

7. Find out the source of ATP necessary for muscle contraction.
   a. Ammonium phosphate
   b. Creatine phosphate
   c. Sodium phosphate
   d. All the these

8. Select the correct sequence of ear ossicle starting from ear drum in human ear.
   a. Malleus, Incus, Stapes
   b. Incus, malleus, stapes
   c. Incus, stapes, malleus
   d. Stapes, incus, malleus

9. Find out the rod cell pigment in human eye.
   a. Cyanolabe
   b. Chlorolabe
   c. Erythrolabe
   d. Rhodopsin

10. Mitral cells are the sensory cells related with:
   a. Vision
   b. Hearing
   c. Taste
   d. Olfaction

11. Select the name of scientist who is related with atomic model.
    a. Thomson
    b. Rutherford
    c. Bohr
    d. All of them

12. Living organisms are open system, because they exchange:
    a. Both heat and matters (nutrients, excreta) with their surroundings
    b. Both heat and temperature with their environment
    c. Heat and temperature in the form of heat loss and heat gain
    d. Heat and gaseous matters with their surroundings

13. The entire set of proteins produced or modified by an organism is called:
    a. Genome
    b. Prion
    c. Proteome
    d. Polypeptide

14. Protein that helps in folding of other protein is known as:
    a. Contractile Protein
    b. Hsp
    c. Phosphoprotein
    d. Glycoprotein

15. Find out the correct statement in relation to LB plot.
    a. Value of only X-Axis is reciprocal
    b. Value of only Y-Axis is reciprocal
    c. Values of both X and Y axis are reciprocal
    d. None of these

16. The mechanism by which an enzyme accelerates rate of reaction is by:
    a. Increase in energy of activation
    b. Decrease in energy of activation
    c. Keeping energy of activation unchanged
    d. All of them

17. Which one of the following is a Michaelis Constant?
    a. $K_m$
    b. $V_o$
    c. $V_{max}$
    d. $\frac{1}{2} V_{max}$

18. Hexose Monophosphate Pathway does not take place in:
    a. Thyroid
    b. Bone
    c. Liver
    d. Adipose tissue

19. Production of ATP and GTP is:
    a. A homeostatic process
    b. A catabolic process
    c. An anabolic process
    d. An isomerization process

20. Gastrointestinal hormones are chemically:
    a. Steroids
    b. Amines
    c. Peptides
    d. Eicosanoids

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## (Descriptive)

**Time : 2 hr. 30 mins.** **Marks : 50**

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

| | | |
|---|---|---|
| 1. | a) Mention the common characteristics of chemical bonds. | 2 |
| | b) Write about the major chemical bonds in atoms and molecules. | 8 |
| 2. | a) Name the major proteins that facilitate contraction of muscles. | 2 |
| | b) Give detailed explanation of contraction mechanism of smooth muscles. | 8 |
| 3. | a) Write how the resting membrane protein cell and action protein cell are generated in the neuron. | 6 |
| | b) Mention the major chemical transmitters that help in nerve impulse transmission. | 4 |
| 4. | a) Mention the need of respiratory adjustment in animals. | 2 |
| | b) Describe different types of hypoxia suffered by animals during respiratory stress. | 8 |
| 5. | What is meant by 'proteiomics'? Explain different structural configurations of protein molecules. | 2+8=10 |
| 6. | Write the mechanism of action of Bisubstrate and multusubstrate enzyme-catalyzed reactions. Add a brief note on various types of enzyme inhibitors. | 8+2=10 |
| 7. | a) Narrate the phases related with the pathways exhibiting metabolic interactions among the major food stuffs. | 7 |
| | b) Write how the inter conversion of proteins and carbohydrates takes place during metabolism. | 3 |
| 8. | a) Bile is without digestive enzymes, but essential for digestion- justify the statement. | 4 |
| | b) Explain the mechanism of secretion of bile and its neural and hormonal regulation. | 3+3=6 |

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