

# RAMAKRISHNA MISSION VIDYAMANDIRA

Belur Math, Howrah – 711 202

ADMISSION TEST – 2018

ZOOLOGY (Honours)

Date : 19-06-2018

Full Marks : 50

Time: 03-00 p.m – 4-00 p.m.

## Instructions for the candidate


Answer all the questions given below. Tick (✓) the correct option in the OMR SHEET. Each correct answer carries 2 marks. For every wrong answer 1 mark will be deducted.

1. Match the type of cells listed under Column I and their secretion given Column II. Choose the answer which gives the correct combination of the alphabets of the two columns.

Column I (Type of cells)	Column II (Secretion)
A Peptic cells	p Mucus
B Oxyntic cells	q Alkaline fluid
C Goblet cells	r Pro-enzymes
	s HCL

- a) A=q, B=p, C=s      b) A=s, B=p, C=q      c) A=s, B=r, C=q      d) A=r, B=s, C=p
2. Noble prize to A. Kornberg and S. Ochoa was given for ?
- a) Artificial synthesis of DNA and RNA      b) Theory of natural selection  
c) One gene one enzyme theory      d) Mutation theory
3. An offspring of two homozygous parents differing from another by alleles at only one gene locus is known as
- a) Back cross      b) Monohybrid      c) Dihybrid      d) Trihybrid
4. Experimentally, if you prevent insulin exocytosis from pancreatic cells. Then, Insulin gene can be found in
- a) Alpha cells      b) Beta cells      c) Delta cells      d) All of the above
5. The below mentioned characteristics
- i) **Moulting**
- ii) **Main body cavity Haemocoel – are found in**
- a) *Periplaneta americana* and *Ascaris lumbricoides*  
b) *Periplaneta americana*, *Ascaris lumbricoides* and *Pheretima posthuma*  
c) *Ascaris lumbricoides*      d) *Periplaneta Americana*
6. Analogous organs indicate
- a) Parallel evolution      b) Natural Selection  
c) Common descendants      d) Ontogeny recapitulates Phylogeny

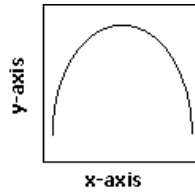
7. **The fundamental characteristics of glycoprotein secreting cells are**
- Numerous mitochondria and microvilli
  - Elaborate Golgi, numerous lysosomes and secretory vesicles
  - Extensive rough ER, elaborate supranuclear golgi and secretory vesicles
  - Elaborate smooth endoplasmic reticulum, numerous mitochondria, secretory vesicles, and lysosomes
8. ***Apis indica* is an example of**
- Synonymy
  - Toponymy
  - Homonymy
  - Tautonymy
9. **During mammalian fertilization sperm nucleus and centriole is internalised in ovum. While the ova centriole degenerates, the paternal centriole remains functional for the cell division cycle during cleavage. If Polyspermy occurs, it will lead to**
- May be polyploid zygote
  - Polyploid zygote followed by polyploid embryonic cells
  - Normal zygote
  - Polyploid zygote followed by genetically different embryonic cells
10. **During inhalation, the partial pressure of O<sub>2</sub> in alveolar capillaries becomes 104 mm Hg but the partial pressure of O<sub>2</sub> in pulmonary vein is 95 mm Hg due to**
- Physiological dead space
  - Bohr effect
  - Anatomical dead space
  - Chloride shift
11. **Haemoglobin is a protein composed of 2 alpha polypeptide chains and 2 beta polypeptide chains. The beta chain is composed of 146 amino acids. How many codons are present in each beta chain mRNA?**
- 292
  - 146
  - 147
  - Cannot be determined
12. **Experimentally, if anyone supplies unlimited inorganic nutrients in an ecosystem, then that hypothetical ecosystem will remain functional without**
- Producers
  - Consumers
  - Decomposers
  - Energy
13. **Choose the correct combination**
- Radial Symmetry- De-centralized nervous system
  - Bilateral symmetry – Excretion through metanephridia
  - Pseudocoelomate- Closed circulatory system
  - Bi-radial symmetry – True coelomate
14. **In Annelids, Chloragogen tissue functions as \_\_\_\_\_**
- Kidney
  - Pancreas
  - Gall bladder
  - Liver
15. **The chromosomal constituent of a Secondary Spermatocyte in anaphase, of an individual belonging from the Species-“S” will be**

- a) 62 
- b) 62 
- c) 31 
- d) 31 

Clues:

- i) Primary Spermatocyte  $\xrightarrow{\text{Meiosis I}}$  Secondary Spermatocyte  $\xrightarrow{\text{Meiosis II}}$  Spermatid  $\rightarrow$  Spermatozoon
- ii) For Species "S",  $2n=62$  and all chromosomes are sub-metacentric.

16. The curve given below show enzymatic activity with relation to three conditions (pH, temperature and substrate concentration). What do both axes (x and y) represent?



	<b>x-axis</b>	<b>y-axis</b>
(1)	Enzymatic activity	Temperature
(2)	Enzymatic activity	pH
(3)	Temperature	Enzyme Activity
(4)	Substrate concentration	Enzymatic Activity

- a) Option 1                      b) Option 2                      c) Option 3                      d) Option 4

17. Consider the following four conditions (i - iv) and select the correct pair of them as adaptation to environment in desert lizards. The conditions (i) Burrowing in soil to escape high temperature (ii) Losing heat rapidly from the body during high temperature (iii) Bask in sun when temperature is low (iv) Insulating body due to thick fatty dermis

- a) (i), (ii)                      b) (iii), (iv)                      c) (ii), (iv)                      d) (i), (iii)

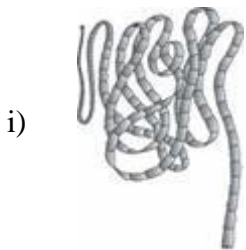
18. An ideal multicellular intestinal endoparasite should exhibit

- a) Well-developed reproductive system well developed digestive system and body covering resistant to intestinal enzymes.
- b) Ill developed reproductive system, well developed digestive system and body covering resistant to intestinal enzymes
- c) Well-developed reproductive system ill developed digestive system and body covering resistant to intestinal enzymes
- d) Ill-developed reproductive system, ill developed digestive system and body covering resistant to intestinal enzymes

19. If you suspect deficiency of antibodies in a person, to which of the following would you look for confirmatory evidence?

- a) Serum globulins                      b) Serum albumins                      c) B lymphocytes                      d) T lymphocytes

20. **Production of a human protein in bacteria by genetic engineering is possible because**
- Bacterial and human ribosomes are similar
  - The mechanism of gene expression is identical in humans and bacteria
  - The human and bacterial chromosomes are similar
  - The genetic code is universal
21. **A person suffers from frequent urination, feels thirsty and there is no sign of glucosuria. The cause of his problem is?**
- Hyposecretion of posterior lobe of pituitary
  - Hypersecretion of posterior lobe of pituitary
  - Hypersecretion of thyroid
  - Hyposecretion of adrenal gland
22. **The biological function of Restriction Enzyme is?**
- Predation
  - Decomposition
  - Protection
  - Competition
23. **Amphibolic cycle that occurs only in aerobic condition is**
- EMP pathway
  - Glycolysis
  - Kreb's cycle
  - E-D pathway
24. **Which one of the followings in birds indicates their reptilian ancestry?**
- Eggs with a calcareous shell
  - Scales on their hind limbs
  - Four-chambered heart
  - Two special chambers crop and gizzard in their digestive tract
25. **The figure shows four animals (i), (ii), (iii) and (iv). Select the correct answer with respect to a common characteristic of two of these animals**



ii)



iii)



iv)



- (i) and (ii) have cnidoblasts for self-defence
- (iii) and (iv) are true coelomates
- (i) and (iv) respire mainly through body wall
- (ii) and (iii) show radial symmetry

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