**Ph.D. COMMON ENTRANCE TEST**­­ **AUGUST 2022**

**Zoology**

**Roll No:**

**PART B**

**Duration: 60 minutes Maximum Marks: 45**

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| **Instructions:**   1. **This entrance test question paper is not to be taken out of the examination hall** 2. **Part B Question paper consists of Section A and Section B** 3. **Section A consists of 25 MCQs carrying 1 Mark each. Put a tick (√) mark against the correct answer in the box given.** 4. **Section B consists of Descriptive questions carrying 5 marks each. Restrict your answer to 500 words. Additional plain sheets have been attached to the question paper to answer Section B** |

**SECTION – A**

**Answer the following by ticking (√) against the correct answer in the box given: 25 X 1 = 25**.

**1**. The codon AUG has dual function. It is initiation codon and also codes for

1. Phenylalanine
2. Formaldehyde
3. Serine
4. Methionine

**2**. Histone is

1. hormone
2. protein
3. DNA
4. RNA

**3**. A cross between F1 generation and recessive parent is known as

1. monohybrid cross
2. Back cross
3. Dihybrid cross
4. Mass selection
5. DNA replication occurs in
6. G2 phase
7. G1 phase
8. S phase
9. M phase
10. Water having excess of OH- is said to be
11. Neutral
12. Alkaline
13. Acidic
14. all of the above
15. Emulsification of fats is brought about by
16. Bile pigments
17. Bile salts
18. HCl
19. salts

**7.** HIV belongs to a group of virus known as

1. Retrovirus
2. papilloma virus
3. arbovirus
4. None of these

**8**. Greenpeace is

1. Governmental policy
2. Non-governmental organization
3. process
4. none of the above

**9.** The hydrogen ion concentration of biological system is described best by

1. Acidity
2. Alkainity
3. pH
4. OH-

**10.** Which of the following statements about mitosis is incorrect?

1. The daughter nuclei are genetically identical to the parent nucleus
2. Chromosomes separate during anaphase due to the interaction of polar microtubules from opposite poles pushing against each other
3. Chromosomes move to metaphase plate using motor proteins, a kind of kinesin, attached to spindle fibers
4. Chromosomes separate during anaphase when the kinetochore microtubules shorten as they depolymerize

**11**. A metapopulation is

1. a population in an urban area
2. a network of distinct and non-interacting species
3. a network of distinct but interacting species
4. a population that constantly occupies all suitable habitats in an area

**12**. Cotton is made pest resistant by incorporating a ------------ gene from Bacillus

thuringenesis

1. Weep toxin
2. Laugh toxin
3. Cry toxin
4. Heat toxin

**13**. The main division of the chromosomes occurs in …...

1. prophase
2. metaphase
3. anaphase
4. telophase

**14**. In aerobic respiration, the terminal electron acceptor is

1. oxygen
2. nitrogen
3. hydrogen
4. nitrate

**15**. Free energy change (ΔG) of a reaction is referred as the amount of energy

1. aliberated during reaction
2. taken up during reaction
3. liberated or taken up during reaction
4. none of these

**16**. Incorporation of atmospheric N2 to NH4+ occurs via the process of

1. assimilatory nitrate reduction
2. transamination
3. deamination
4. nitrogen fixation

**17**. As the electron flow through the chains, much of their free energy is conserved in the form of ATP. This process is called

1. aoxidative phosphorylation
2. electromotive potential
3. dehydrogenations
4. none of these

**18**. Entner-Doudoroff pathway is not found in

1. aerobic prokaryotes
2. anaerobic prokaryotes
3. Both (a) and (b)
4. Eukaryotes

**19**. Nitrogen fixation is a process that requires

1. energy
2. an anaerobic environment
3. both (a) and (b)
4. an aerobic environment

**20**. Where does electron transport of cellular respiration happen within the cell of a bacterium?

1. plasma membrane
2. nucleus
3. mitochondria
4. chloroplast

**21**. Isoelectric point of amino acids is used for

1. Crystallisation
2. Precipitation
3. Solubility
4. Reactivity

**22.** Symporters and antiporters are involved in

1. Primary active transport
2. Secondary active transport
3. Primary passive transport
4. Secondary passive transport

**23.** The cytokines that is released in response to virus infection?

1. Interferons
2. Monokines
3. Lymphokines
4. Interleukins

**24**. Which of the following is an appropriate method for detecting nucleic acids?

1. Measuring absorbance at 260 nm.
2. Autoradiography of radiolabeled nucleic acids.
3. Chemiluminescence of DNA labeled with biotin or digoxigenin.
4. All of the above are appropriate methods for detecting nucleic acids.

**25**. Which type of mutation is the most common?

1. insertion of one or more bases
2. deletion of one of more bases
3. base substitutions
4. inversion of DNA segments

**SECTION – B**

**Answer any four of the following: 5 X 4 = 20**

1.Trace the steps involved in Glycolysis pathway

2. Illustrate the structure of plasma membrane

3. Explain the different stages of cell cycle

4. Write the applications of PCR

5. Explain Mendelian’s laws of heredity

6. Discuss the impact of CFCs on environment

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