FEDERAL PUBLIC SERVICE COMMISSION

SPECIAL COMPETITIVE EXAMINATION-2023 FOR RECRUITMENT TO POSTS IN BS-17 UNDER THE FEDERAL GOVERNMENT

ZOOLOGY

Roll Number

TIME ALLOWED: THREE HOURS	**(PART-I MCQs) MAXIMUM MARKS: 20**
PART-I (MCQs) : MAXIMUM 30 MINUTES	**(PART-II) MAXIMUM MARKS: 80**

NOTE: (i) First attempt **PART-I (MCQs)** on separate **OMR Answer Sheet** which shall be taken back after **30 minutes.**

(ii) Overwriting/cutting of the options/answers will not be given credit.

(iii) There is **no negative** marking. All MCQs must be attempted.

PART-I (MCQs)(COMPULSORY)

Q.1. (i) Select the best option/answer and fill in the appropriate Box ■ on the **OMR Answer Sheet. (20x1=20)**

(ii) Answers given anywhere else, other than OMR Answer Sheet, will not be considered.

1. **The body of some animals is externally and internally divided into segments, this phenomenon is called as:** (A). Segregation (B). Metamerism (C). Pseudocoelomism (D). None of these
2. **In the protozoans, different modes of locomotion are due to presence of different types of locomotory organelles which includes:** (A). Pseudopodia, cilia and flagella (B). Segments and flagella (C). Pseudocoelom and cilia (D). None of these
3. **Which of the following animals utilizes a flow of water for crawling over a surface?** (A) Starfish (B) Leech (C) Snake (D) None of these
4. **The physiological activity in which protoplasm of the protozoans captures the food in a food vacuole, digests it, discharges the wastes and incorporates the digested materials into their protoplasm is termed as:** (A). Deposit feeding (B). Extracellular Digestion (C). Intracellular Digestion (D). None of these
5. **In sea urchin from buccal cavity a slender pharynx runs vertically which is surrounded by a masticatory apparatus, called:** (A). Gizzard (B). Aristotle's lantern (C). Diverticulum (D). None of these
6. **The equation "$C_6H_6O_6 + O_2 \rightarrow CO_2 + H_2O$ + energy" represents:** (A). Aerobic Respiration (B). Anaerobic Respiration (C). Prosbranchia (D). None of these
7. **Haemoglobin contain Iron and is carried by red blood cells in blood of vertebrates while in Annelids and Mollusks a copper containing pigment performing similar function is known as:** (A). Pinnaglobin (B). Haemoerythrin (C). Haemocyanin (D). None of these
8. **The template strand of a gene being transcribed is CTTGCCAGT. What will be the sequence of the RNA made from this template?** (A). GAACGGUCT (B). GAACTTUCT (C). CGTACGGUCT (D). None of these
9. **Herpetology is the scientific study of:** (A) Fish and Birds (B) Amphibians and Reptiles (C) Mammals and Sharks (D) None of these
10. **A gene contains 141 codons. How many nucleotides are present in the gene's coding sequence?** (A). 723 (B). 423 (C). 623 (D). None of these
11. **Among living organisms, the estimated number of animal species on earth falls in the huge range of 7.77 million, of this number about 3 percent are----------, while other 97% of the animal kingdom, are:** (A). Vertebrates, Invertebrates (B). Invertebrates, Vertebrates (C). Vertebrates, Parasites (D). None of these
12. **Iron containing pigments are:** (A). Haemoerythrin (B). Haemoglobin (C). Both (A) & (B) (D). None of these
13. **Both DNA and RNA are composed of nucleotides. _____ molecules combine to form a nucleotide.** (A). AT-CG (B). A sugar, a nitrogenous base, and a phosphate. (C). UAG (D). None of these
14. **In _____, the chromosomes are contained within a membrane-bounded structure called the nucleus.** (A). Virotes (B). Prokaryotes (C). Eukaryotes (D). None of these
15. **In Human fertilization occurs in the _____of the oviduct (fallopian tube):** (A). Endometrium (B). Ampulla (C). Both (A) & (B) (D). None of these
16. **_____ bring oxygen-rich blood to the fetus from the placenta and closes after birth.** (A). Umbilical vein (B). Umbilical artery (C). Coronary vein (D). None of these
17. **_____ was the first human female to have been born after conception by in vitro fertilisation experiment.** (A). Margret Munro (B). Julia Eckersley (C). Louise Joy Brown (D). None of these
18. **A Culture and sensitivity report shows Amoxicillin is sensitive against particular organism. It means:** (A). Infection treatable by the normal dosage of Amoxicillin (B). Infection may respond to higher dosage of Amoxicillin (C). Unlikely to respond to usual dosage of the Amoxicillin (D). None of these
19. **_____is the time interval between the entry of infective agent and the onset of clinical manifestations of the disease.** (A). Parturition period (B). Incubation period (C). Recovery period (D). None of these
20. **_____contains all the substances, which are present in the plasma except fibrinogen.** (A). Blood (B). Plasma (C). Serum (D). None of these

PART-II

TIME ALLOWED: THREE HOURS **PART-I(MCQS): MAXIMUM 30 MINUTES**	**PART-I (MCQS) MAXIMUM MARKS = 20** **PART-II MAXIMUM MARKS = 80**

NOTE: (i) **Part-II** is to be attempted on the separate **Answer Book.**

(ii) Attempt **ONLY FOUR** questions from **PART-II**. **ALL** questions carry **EQUAL** marks.

(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.

(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.

(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.

(vi) Extra attempt of any question or any part of the question will not be considered.

Q. No. 2. What are stem cells? Discuss different types of stem cells, with reference to the increasing use in the treatment of various diseases. **(20)**

Q. No. 3. Differentiate Habitat and Niche in an ecosystem. Explain these phenomena with suitable examples. **(20)**

Q. No. 4. Mendel found that in pea plants, yellow seeds (Y) were dominant to green seeds (y) and Smooth seeds (S) were dominant to wrinkled (s). Considering this, and using the following phenotypic data determine the genotype for each of the offspring in self-fertilization of YySs x YySs **(20)**

Q. No. 5. Define and discuss Typological species concept and Biological species concept with suitable examples from Taxonomy. **(20)**

Q. No. 6. Spermatogenesis is the process of formation of mature sperm cells through mitotic and meiotic cycles. Discuss Spermatogenesis in detail? **(20)**

Q. No. 7. Write Notes on any two of the following: **(10 each)** **(20)**

(a). Structure of Human ovary

(b). Structure of Hen's Egg

(d). Structure of the Spermatozoon

Q. No. 8. Write Notes on any two of the following: **(10 each)** **(20)**

(a). Leishmaniasis

(b). Plasmodium species

(c). Structure of Amoeba proteus.

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