

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

TEST BOOKLET

Sl. No. 00160

Subject Code : 28

Subject : Zoology

LECTURERS FOR NON-GOVT. AIDED COLLEGES OF ODISHA

Time Allowed : 3 Hours

Maximum Marks : 165

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET CONTAINS 24 PAGES AND DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. You have to enter your Roll No. on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet. 

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3. The Test Booklet contains 165 questions. Each question comprises four answers. You have to select the correct answer which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct answer, you should mark (darken) the answer which you consider the best. In any case choose ONLY ONE answer for each question. If more than one answer is darkened it will be considered as wrong.
4. You have to mark (darken) all your answers ONLY on the separate OMR Answer Sheet provided, by using BLACK BALL POINT PEN. You have to do rough work on the space provided in the Test Booklet only. See instruction in the Answer Sheet.
5. All questions carry equal marks, i.e. of one mark for each correct answer and each wrong answer will result in negative marking of 0.25 mark.
6. Before you proceed to mark (darken) in the Answer Sheet the answers to various questions in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions in your Admit Card.
7. After you have completed filling in all your answers on the Answer Sheet and after completion of the examination, you should hand over to the Invigilator the Original Answer Sheet (OMR Answer Sheet) issued to you. You are allowed to take with you the candidate's copy/second page of the Answer Sheet along with the Test Booklet after completion of the examination for your reference.

SEAL

Candidate's full signature

Invigilator's signature

RS - 10/28

(Turn over)

2018

1. The members of which of the following phylum are parasites in red blood cells of vertebrates :
  - (A) Ciliophora
  - (B) Apicomplexa
  - (C) Dinoflagellata
  - (D) Axostylata
  
2. What is the infectious stage of **Plasmodium sp.** which infects human ?
  - (A) Merozoites
  - (B) Trophozoites
  - (C) Sporozoites
  - (D) Gametocytes
  
3. What is the correct sequence of life cycle of a liver fluke ?
  - (A) Egg, reidia, cercaria, metacercaria, sporocyst, miracidium, adult
  - (B) Egg, miracidium, reidia, sporocyst, cercaria, metacercaria, adult
  - (C) Egg, miracidium, sporocyst, reidia, cercaria, metacercaria, adult
  - (D) Egg, reidia, miracidium, sporocyst, cercaria, metacercaria, adult
  
4. Which of the following classes of Platyhelminthes is exclusively endoparasitic ?
  - (A) Trematoda
  - (B) Cestoda
  - (C) Turbellaria
  - (D) Monogenea
  
5. The disease "Bilharzia" which is common in China and Middle East is caused by :
  - (A) Blood fluke Schistosoma
  - (B) Wuchereria
  - (C) Taenia saginata
  - (D) Planaria
  
6. The filarial parasite is transmitted by :
  - (A) Female Aedes
  - (B) Female Culex
  - (C) Male Anopheles
  - (D) Male Aedes
  
7. Book lungs are respiratory organs of :
  - (A) Crustaceans
  - (B) Beetles
  - (C) Arachnids
  - (D) Peripatus
  
8. Find the odd one out :
  - (A) Nauplius, Cypris, Zoea
  - (B) Mysis, Megalopa, Allima
  - (C) Nauplius, Cypris, Kentrogen
  - (D) Nauplius, Cypris, Trochophore
  
9. Identify the Incorrect statement :
  - (A) Flame cells are excretory organ of **Planaria**
  - (B) Flame cells are so named because of the flagella of the cell resemble flame
  - (C) Flame cells are aggregated to form a kidney shaped organ
  - (D) Molluscs excrete through organ of Bojanus

10. Which of the following organisms neither have notochord nor vertebral column in the adult stage ?
- Cephalochordates
  - Herdmania**
  - Petromyzon**
  - Bdellostoma**
11. Which of the following is a vertebrate organism ?
- Cuttle fish
  - Devil fish
  - Globe fish
  - Cry fish
12. Hepatic portal system is present in all :
- Amniotes only
  - Anamnotes
  - Amniotes and anamniotes
  - Amniotes, anamniotes and in some tunicates
13. Auricularia is the larva of :
- Holothuroidea
  - Asteroidea
  - Ophiuroidea
  - Echinoidea
14. Bipinnaria larva is found in the development of
- Star lilly
  - Sea cucumber
  - Sea star
  - Starfish
15. Identify the CORRECT statement :
- Whales can shut down half of their brain, while the other half remain active
  - Whales have blubber that helps in perception of vibration during echolocation and it keep them warm
  - Whales have the same rate of gas exchange in lungs like human only they have much larger lungs
  - Whales can totally fall asleep below the water for 1 hour
16. The pneumatic bones are characteristic of :
- Amphibians
  - Reptiles
  - Aves
  - Aquatic Mammals
17. Hallux is :
- Type of feather in birds
  - A flightless bird
  - First digit of hindlimb of birds
  - A carnivorous bird
18. Identify the INCORRECT statement :
- Birds have air sacs attached to their lungs
  - Birds have heterocoelous vertebrae
  - Some birds can fly backwards
  - All birds have only one ovary to reduce their weight

19. Read the statements and choose the correct series of statements :
- (1) Ichthyophis coils around their eggs to protect them
  - (2) Ichthyophis is a reptile
  - (3) Ichthyophis lives in burrow
  - (4) Foam nests are example of parental care
  - (5) Rhacophorus builds foam nests
  - (6) Parental care is not naturally selected
- (A) (1), (2), (3), (4), (5), (6)  
 (B) (2), (4), (5), (6)  
 (C) (1), (3), (4), (5)  
 (D) (1), (2), (3), (4), (6)
20. Which group's member have both gills and lungs during their adulthood ?
- (A) Lancelets  
 (B) Lungfishes  
 (C) Sharks, skates, rays  
 (D) Amphibian
21. A character first observed in emergence and evolution of earliest tetrapods was :
- (A) Appearance of feet with digits  
 (B) Appearance of jaws  
 (C) Appearance of bony vertebrate  
 (D) The ability to swim like fishes
22. Which characteristic separate chordates from all other animals ?
- (A) True coelom  
 (B) Blastopore which becomes anus  
 (C) Post anal tail  
 (D) Bilateral symmetry
23. Corals are most closely related to which group ?
- (A) Freshwater hydras  
 (B) Sea anemones  
 (C) Sponges  
 (D) Barnacles
24. Which characteristic is shared by both cnidarians and flatworms ?
- (A) Dorsoventrally flattened bodies  
 (B) Flame bulbs  
 (C) Radial symmetry  
 (D) A digestive system with a single opening
25. An organism that has only behavioral controls over its body temperature is the :
- (A) Green frog  
 (B) Penguin  
 (C) Bluefin tuna  
 (D) Gray wolf
26. Hibernation and estivation are both examples of :
- (A) Acclimatization  
 (B) Torpor  
 (C) Evaporative cooling  
 (D) Non-shivering thermogenesis

27. Extracellular compartmentalization of digestive processes is an evolutionary adaptation in many animal phyla. Which of the following phyla is correctly paired with the compartment that first evolved in that phylum ?
- (A) Mollusca - large intestine
  - (B) Arthropoda - stomach
  - (C) Annelida - complete alimentary canal
  - (D) Cnidaria - gastrovascular cavity
28. Which of the following are the only vertebrates in which blood flows directly from respiratory organs to body tissue without first returning to the heart ?
- (A) Amphibians
  - (B) Birds
  - (C) Fishes
  - (D) Reptiles
29. A person with a tidal volume of 450 mL, a vital capacity of 4,000 mL and a residual volume of 1,000 mL would have a potential total lung capacity of :
- (A) 4,000 mL
  - (B) 4,450 mL
  - (C) 5,000 mL
  - (D) 5,450 mL
30. Which features of osmoregulation is found in both marine and fresh water bony fish ?
- (A) Loss of water through the gills
  - (B) Gain of salt through the gills
  - (C) No drinking of water
  - (D) Gain of water through food
31. Birds excrete uric acid as their nitrogenous waste because uric acid :
- (A) Is readily soluble in water
  - (B) Is metabolically less expensive to synthesize than other excretory products
  - (C) Requires little water for nitrogenous waste disposal which is conducive to the function of flight in terms of weight
  - (D) Excretion allows birds to live in desert environments
32. Which structure increases the reabsorption of  $\text{Na}^+$  when stimulated by aldosterone ?
- (A) Loop of Henle
  - (B) Bowman's capsule
  - (C) Proximal tubule
  - (D) Distal tubules
33. The heartworms that can accumulate within the hearts of dogs and other mammals have a pseudocoelom, an alimentary canal, and an outer covering that is occasionally shed. To which phylum does the heartworm belong ?
- (A) Platyhelminthes
  - (B) Nematoda
  - (C) Acoela
  - (D) Annelida

34. How many unique gametes could be produced through independent assortment by an individual with the genotype **AaBbCCDdEE** ?
- (A) 4  
(B) 8  
(C) 16  
(D) 32
35. When crossing an organism that is homozygous recessive for a single trait with a heterozygote, what is the chance of producing an offspring with the homozygous recessive phenotype ?
- (A) 0%  
(B) 25%  
(C) 50%  
(D) 75%
36. A particular triplet of bases in the template strand of DNA is 5' AGT 3'. The corresponding codon for the mRNA transcribed is :
- (A) 3' UCA 5'  
(B) 3' UGA 5'  
(C) 5' TCA 3'  
(D) 3' ACU 5'
37. Transcription in eukaryotes requires which of the following in addition to RNA polymerase ?
- (A) The protein product of the promoter  
(B) Start and stop condons  
(C) Ribosomes and tRNA  
(D) Several transcription factors (TFs)
38. The lactose operon is likely to be transcribed when :
- (A) There is more glucose in the cell than lactose  
(B) The cyclic AMP levels are low  
(C) There is glucose but no lactose in the cell  
(D) The cyclic AMP and lactose levels are both high within the cell
39. Penicillin is an antibiotic that inhibits enzymes from catalyzing the synthesis of peptidoglycan, so which prokaryotes should be most vulnerable to inhibition of penicillin ?
- (A) Mycoplasmas  
(B) Gram-positive bacteria  
(C) Gram-negative bacteria  
(D) Endospore-bearing bacteria
40. Which of the following is an important source of endotoxin in gram-negative species ?
- (A) Endospore  
(B) Sex pilus  
(C) Flagellum  
(D) Cell wall
41. Which of the following statements is **not** true ?
- (A) Archaea and bacteria have different membrane lipids  
(B) Both archaea and bacteria generally lack membrane-enclosed organelles  
(C) The cell walls of archaea lack peptidoglycan  
(D) Only bacteria have histones associated with DNA

42. A features common to all trans-membrane proteins is :
- (A) A phosphorylated exterior domain
  - (B) A structure consisting Beta-sheets
  - (C) An amino acid sequence rich in acidic residues
  - (D) An alpha helical region of about 20 to 25 hydrophobic amino acids
43. A protein that has not been synthesized by membrane free ribosomes in cytosol :
- (P) Most likely synthesized in smooth endoplasmic reticulum
  - (Q) Most likely synthesized by ribosomes attached with rough endoplasmic reticulum
  - (R) Enters through the trans face of endoplasmic reticulum
  - (S) Enter into the Golgi complex from cis face
- (A) (P) only
  - (B) (P) and (R)
  - (C) (Q) and (S)
  - (D) (Q) and (R)
44. The p21 protein :
- (P) Is a cyclin dependent kinase inhibitor (CKI)
  - (Q) Regulate cell cycle progression at G1
  - (R) Synthesis is controlled by p53 protein
  - (S) Is a cyclin dependent kinase
- (A) (P), (Q) and (R)
  - (B) (Q), (R) and (S)
  - (C) (P), (R) and (S)
  - (D) (P), (Q), (R) and (S)
45. Most human cells are diploid with total DNA content of 2C. The DNA content increases to 4C before the onset of mitosis. At anaphase, the DNA content of each cluster will be :
- (A) 4C
  - (B) 2C
  - (C) 1C
  - (D) 3C
46. Cell cycle is controlled by :
- (P) Change in the concentration of CDKs
  - (Q) Change in the concentration of cyclins
  - (R) Change in the concentration of cyclins and CDKs
  - (S) Change in activity of CDKs
- (A) (P) and (Q)
  - (B) (Q) and (R)
  - (C) (Q) and (S)
  - (D) (Q), (R) and (S)