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FOR KUET EXAM PREPARATION

KUET 2022 Question Paper · M.Sc. Zoology

EXAM	YEAR	TYPE	SUBJECT
KUET	2022	Question Paper	M.Sc. Zoology

Sr. No. 0345

ENTRANCE TEST-2022

SCHOOL OF BIOLOGICAL SCIENCES

ZOOLOGY

Total Questions : 60
Time Allowed : 70 Minutes

Question Booklet Series A

Roll No. :

Instructions for Candidates :

1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be **'Negative Marking'** for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/ herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

SEAL

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1. Regulator gene controls chemical synthesis (Operon Concept) by :
   (A) Inhibiting transcription of mRNA
   (B) Inhibiting enzymes
   (C) Inhibiting passage of mRNA
   (D) Inhibiting substrate enzyme reaction

2. Short bones of 5 clawed fingers with phalangeal formula 2, 3, 3, 3, 3 is found in :
   (A) Frog
   (B) Lizard
   (C) Pigeon
   (D) Rabbit

3. Proctodeum opens at the base of the tail ventrally by a transverse slit with tumid lips in case of :
   (A) *Columba*
   (B) *Uromastix*
   (C) *Rana tigrina*
   (D) *Scoliodon*

4. Which of the following locomotor organelles of protozoa are filamentous, forming branches, and are inter-connected profusely to form a network-like structure ?
   (A) Lobopodia
   (B) Filopodia
   (C) Axopodia
   (D) Reticulopodia

5. Which grade of the leucon type of canal system is found in Spongilla ?
   (A) Eurypylous
   (B) Apodal
   (C) Diplodal
   (D) Both (A) and (C)

6. Which of the following metamorphosis is observed in the case of the housefly ?
   (A) Complete metamorphosis
   (B) Gradual metamorphosis
   (C) Incomplete metamorphosis
   (D) Neometamorphosis

7. Which of the following effects are not true about torsion ?
   (A) Mantle cavity opens just behind the head
   (B) The alimentary canal is thrown into a loop
   (C) Coil of visceral sac and shell remains dorsal or exogastric
   (D) Uncoiled pleuro-visceral nerve connectives become twisted

8. To which of the following class Feather star and Sea lilly belong to ?
   (A) Holothuroidea
   (B) Echinoidea
   (C) Asteroidea
   (D) Crinoidea

9. Which of the following has fish like laterally compressed shape ?
   (A) Branchiostoma
   (B) Herdmania
   (C) Balanoglossus
   (D) Both (A) & (C)

10. Ear in Petromyzon possess :
   (A) 3 semicicular ducts
   (B) 2 semicicular ducts
   (C) 1 semicicular duct
   (D) No semicicular ducts

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11. *Neoceratodus* is :
    (A) African lungfish
    (B) American lungfish
    (C) Australian lungfish
    (D) Asian lungfish
12. Which one of the following is present in sharks ?
    (A) Operculum
    (B) Air bladder
    (C) Ganoid scales
    (D) Scroll valve
13. Which of the following Medusoid individual is usually leaf-like studded with nematocysts ?
    (A) Nectocalyx
    (B) Pneumatophore
    (C) Phyllozoid
    (D) Gonophore
14. Which of the following is true about cysticercus ?
    (A) It leads an active life in the body of a pig
    (B) In pig's body it remains viable for only a few days
    (C) It develops into an adult when ingested by human
    (D) It is characterized by the absence of vesicles and scolex
15. Eggs are glued to the body as parental care in case of :
    (A) *Desmognathusfuscus*
    (B) *Rana clamitans*
    (C) *Rhacophorus schlegeli*
    (D) *Salamandra salamandra*
16. Small soft and wooly feathers without rachis are :
    (A) Quills
    (B) Filoplumes
    (C) Down feathers
    (D) Tactile feathers
17. The gall bladder in the case of *Scoliodon* is :
    (A) Y shaped thin-walled
    (B) Large spherical greenish
    (C) Elongated dark green
    (D) Absent
18. Which of the following animal has the most efficient lungs among vertebrates ?
    (A) Amphibians
    (B) Reptiles
    (C) Birds
    (D) Mammals
19. The receptors for touch present in the skin are called :
    (A) Meissner's corpuscles
    (B) Krause's end bulbs
    (C) Pacinian corpuscles
    (D) Corpuscles of Ruffini
20. Human placenta is classified as _____.
    (A) Mesohorial
    (B) Epitheliochoria
    (C) Haemochorial
    (D) Endotheliochorial

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21. If there is no blastocoelic cavity in the blastula, the smaller micromeres accumulate as a cluster of cells over the largely vegetally placed macromeres. The solid blastula that results at cleavage is known as :
    (A) Coeloblastula
    (B) Stereoblastula
    (C) Discoblastula
    (D) Amphiblastula
22. Oviduct in vertebrates is modified :
    (A) Wolffian duct
    (B) Urinary duct
    (C) Inguinal canal
    (D) Mullerian duct
23. Which of the following statements is correct regarding vertebrates ?
    (A) There are 12 pairs of cranial nerves in anamniotes and 10 pairs in amniotes
    (B) Amphibians possess smaller olfactory lobes and larger optic lobes
    (C) Abducens originates from the floor of medulla
    (D) Trigeminal is the IVth cranial nerve
24. Caloreceptors are the receptors for the sensation of :
    (A) Cold
    (B) Warmth/heat
    (C) Pain
    (D) Touch
25. Sabella is known to be :
    (A) Filter feeder
    (B) Ciliary feeder
    (C) Bottom dweller
    (D) Raptorial feeder
26. Fertilization does not occur in the absence of :
    (A) Magnesium
    (B) Calcium
    (C) Sodium
    (D) Potassium
27. If the secretion of parietal cells of gastric glands is blocked by an inhibitor, what will happen ?
    (A) Pepsinogen cannot be converted into active pepsin in the absence of HCL secretion
    (B) Gastric juice will be deficient in chymosin
    (C) Enterokinase will not be released from duodenal mucosa so trypsinogen will not be converted into trypsin
    (D) Gastric juice will be deficient in pepsinogen
28. Chloride shift occurs in response to ?
    (A) Na^+
    (B) K^+
    (C) H^+
    (D) HCO_3^-
29. Which of the following pairs is correctly matched ?
    1. Uraemia : excess urea in the blood
    2. Hemophilia : absence of clotting factor VIII
    3. Glycosuria : X-linked disorder
    4. Hyperglycaemia : excess glucose in blood
    (A) 1, 2 and 4 are correct
    (B) 1 and 2 are correct
    (C) 3 and 4 are correct
    (D) 1, 3 and 4 are correct
30. Dissociation curve shifts to the right when :
    (A) O_2 concentration decreases
    (B) CO_2 concentration decreases
    (C) CO_2 concentration increases
    (D) Chloride concentration increases

31. The correct pathway for the transmission of impulses in the heartbeat is :
(A) AV node > SA node > Bundle of His > Purkinjee fibres
(B) SA node > AV node > Bundle of His > Purkinjee fibres
(C) SA node > Bundle of His > AV node > Purkinjee fibres
(D) AV node > Bundle of His > SA node > Purkinjee fibres

32. In the process of transmission of a nerve impulse, the inner side of the plasma membrane carries an electric charge :
(A) First positive, then negative, and again back positive
(B) First negative, then positive, and again back negative
(C) First positive, then negative, and continue to be negative
(D) First negative, then positive, and continue to be positive

33. The theory of evolution by natural selection states that :
(A) Selection and variation are independent
(B) Selection results in generating variations
(C) Evolution is independent of variation
(D) Evolution is a rapid process

34. The major evolutionary episode corresponding most closely in time with the formation of Pangaea was the :
(A) Cambrian explosion
(B) Permian extinctions
(C) Pleistocene ice ages
(D) Cretaceous extinctions

35. Plane of cleavage is determined by :
(A) Nucleo-cytoplasmic ratio
(B) Temperature
(C) Position of yolk granules
(D) Position of mitotic spindle of the dividing egg

36. The contractile protein of skeletal muscle involving ATPase activity is :
(A) Tropomyosin
(B) Myosin
(C) α-Actinin
(D) Troponin

37. Which one of the following prevents internal reflection of light inside eye ?
(A) Cornea
(B) Conjunctiva
(C) Sclera
(D) Choroid

38. Which of the following is protein hormone ?
(A) Oxytocin
(B) Insulin
(C) TSH
(D) Antidiuretic hormone

39. How do hormones from the thyroid and parathyroid regulate the calcium concentration of the blood ?
(A) Calcitonin lowers blood calcium; parathyroid hormone raises blood calcium.
(B) Parathyroid hormone lowers blood calcium; calcitonin raises blood calcium.
(C) Thyroxine and triiodothyronine together regulate calcium levels, as needs dictate.
(D) Both parathroid hormone and the three thyroid hormones function to regulate blood calcium levels.

40. The blood calcium level is lowered by the deficiency of :
(A) Calcitonin and parathormone
(B) Calcitonin
(C) Parathormone
(D) Thyroxine

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41. The organs whose origin comes from two embryonic layers are :

1. Hypophysis
2. Adrenal gland
3. Sense organs
4. Pancreas

(A) 1, 2 and 3 are correct
(B) 1 and 2 are correct
(C) 2 and 4 are correct
(D) 1 and 3 are correct

42. The monosaccharides like glucose and fructose exist :

(A) Only in ring form
(B) Only in open straight chain
(C) Both in ring and open straight-chain form
(D) None of the above

43. The mechanism of enzyme action is based on :

(A) Michaelis and Menton
(B) Beadle and Tatum
(C) Jacob and Monad
(D) Wilson and Flemming

44. The pyruvic acid formed during glycolysis is oxidized to CO_2 and H_2O in a cycle called :

(A) Calvin cycle
(B) Nitrogen cycle
(C) Hill reaction
(D) Kreb's cycle

45. When acetyl-CoA accumulates in the mitochondria of the liver, what will happen ?

(A) It is used as an energy source
(B) It has broken down into free fatty acids
(C) It gets converted to oxaloacetate
(D) It forms ketone bodies

46. In *E. coli* the *lac* operon gets switched on when :

(A) Lactose is present and it binds to the repressor
(B) Repressor binds to operator
(C) RNA polymerase binds to the operator
(D) Lactose is present and it binds to RNA polymerase

47. Coupling and repulsion are two faces of :

(A) Linkage
(B) Crossing over
(C) Mutation
(D) Chiasmata

48. Short DNA fragments referred to as Okazaki pieces are synthesized during DNA replication. The template strand for their synthesis is :

(A) Each of the strands of DNA duplex
(B) Leading strand of DNA
(C) Lagging strand of DNA
(D) Single-stranded DNA of virus like φ X 174

49. In the case of sex-linked (X-linked) inheritance which of the following statement is incorrect ?

(A) The trait does not skip generations
(B) Affected males must come from affected mothers
(C) Approximately half of the children of an affected heterozygous female are affected
(D) All sons of the affected man are affected

50. The 3′-5′ phosphodiester linkages inside a polynucleotide chain serve to join :

(A) one DNA strand with another DNA strand
(B) one nucleoside with another nucleoside
(C) one nucleotide with another nucleotide
(D) one nitrogenous base with pentose sugar

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51. In the Lac operon system, β-galactosidase is coded by :
(A) a-gene
(B) i-gene
(C) l-gene
(D) z-gene

52. The correct gene expression pathway is :
(A) Gene > mRNA > transcription > translation > protein
(B) Transcription > gene > translation > mRNA > protein
(C) Gene > transcription > mRNA > translation > protein
(D) Gene > translation > mRNA > transcription > protein

53. Despite some differences in the developmental patterns, comparative embryological studies support the concept of :
(A) Darwinian evolution
(B) Lamarkian evolution
(C) Neo-Darwinian Evolution
(D) Vries Mutation

54. The earliest fossil form in the phylogeny of the horse is :
(A) Merichippus
(B) Eohippus
(C) Equus
(D) Mesohippus

55. A new species emerges from this geographic range of its ancestor as per this theory of speciation :
(A) Sympatric speciation
(B) Parapatric speciation
(C) Allopatric speciation
(D) None of these

56. What is true of natural selection ?
(A) Natural selection is a random process.
(B) Natural selection creates beneficial mutations.
(C) The only way to eliminate harmful mutations is through natural selection.
(D) Mutations occur at random; natural selection can preserve and distribute beneficial mutations.

57. Which of the following is included in the concept of genetic bottlenecks ?
(A) A loss of genetic diversity in descendent populations
(B) Sharing genetic material between two populations
(C) Extensive gene flow
(D) Increased ability to resist new diseases

58. Allopatric speciation occurs when population show :
(A) Reproductive isolation
(B) Ecological isolation
(C) Seasonal isolation
(D) Geographic isolation

59. Which of the following is a poisonous snake ?
(A) *Typhlopsbraminus*
(B) *Eryxjohnii*
(C) *Lycodonaulicus*
(D) *Bungaruscaerulus*

60. RBC's are nucleated in :
(A) Frog
(B) Rat
(C) Rabbit
(D) Cat