NOTE : DO NOT BREAK THE SEAL UNTIL YOU GO THROUGH THE FOLLOWING INSTRUCTIONS

COMMON ENTRANCE TEST - 2012

Question Booklet BIOLOGY

Roll No. | | | | | | |

(Enter your Roll Number in the above space)

Booklet No.

Series D 303392

Time Allowed : 1.30 Hours **Max. Marks : 75**

INSTRUCTIONS :

1. Use only BLACK or BLUE Ball Pen.
2. All questions are COMPULSORY.
3. Check the BOOKLET thoroughly.

   IN CASE OF ANY DEFECT - MISPRINTS, MISSING QUESTION/S OR DUPLICATION OF QUESTION/S, GET THE BOOKLET CHANGED WITH THE BOOKLET OF THE SAME SERIES. NO COMPLAINT SHALL BE ENTERTAINED AFTER THE ENTRANCE TEST.
4. Before you mark the answer, fill in the particulars in the ANSWER SHEET carefully and correctly. Incomplete and incorrect particulars may result in the non-evaluation of your answer sheet by the technology.
5. Write the SERIES and BOOKLET NO. given at the TOP RIGHT HAND SIDE of the question booklet in the space provided in the answer sheet by darkening the corresponding circles.
6. Do not use any **eraser, fluid pens, blades** etc., otherwise your answer sheet is likely to be rejected whenever detected.
7. After completing the test, candidates are advised to hand over the OMR ANSWER SHEET to the Invigilator and take the candidate's copy with yourself.

1. Surfactant :

(1) Is a protein produced by type II alveolar cells

(2) Is excessive in many premature infants resulting in difficulties breathing

(3) Decreases the surface tension of the fluid lining the alveoli

(4) Is lacking in individuals suffering from acute respiratory distress syndrome

2. The problem of electrical discontinuity caused in the normal heart by the connective tissue separating the atria from the ventricles is solved by :

(1) Coordinating electrical activity in the atria with electrical activity in the ventricles by connecting them via the bundle of His

(2) Having the A-V node function as a secondary pacemaker

(3) Having an ectopic pacemaker.

(4) Coordinating electrical activity in the atria with electrical activity in the ventricles by connecting them via the vagus nerve

3. The protein whose removal enables myosin to bind actin in smooth muscle is :

(1) Tropomyosin (2) Caldesmon

(3) Myosin light chain kinase (4) Calmodulin

4. An investigator places an isolated neuron in a calcium-free medium, gives the neuron a suprathreshold stimulus and then performs an assay to test whether neurotransmitter is released into the medium. Which of the following outcomes would you predict?

(1) No neurotransmitter is detected since influx of calcium into the synaptic knob is required for neurotransmitter release

(2) No neurotransmitter is detected since influx of calcium is required in order for the neuron to conduct an action potential

(3) Neurotransmitter is detected since calcium is not required for action potential conduction and the initial stimulus was suprathreshold

(4) We cannot predict the outcome without knowing whether the neuron was myelinated

5. Sporopollenin, an organic material is present in :

(1) Stigma (2) Style (3) Exine (4) Intine

6. In general, pollen tube enters the ovule through :

(1) Micropyle (2) Chalaza (3) Hilum (4) Funicle

7. Transfer of pollen grain from anther to stigma of another flower of the same plant is called as :

(1) Geitonogamy (2) Xenogamy

(3) Cleistogamy (4) Chasmogamy

8. The endosperm cells in angiosperms are :

(1) Haploid (2) Diploid (3) Triploid (4) Tetraploid

9. The fleshy edible part of an apple is :

(1) Thallamus (2) Nucellus

(3) Ovary (4) Endosperm

10. The portion of embryonal axis above cotyledon is called as :

(1) Epicotyl (2) Hypocotyl

(3) Coleoptile (4) Radicle

11. Phenotypic and genotypic ratio is similar in case of :

(1) Complete dominance (2) Incomplete dominance

(3) Over dominance (4) Epistasis

12. Of the following which is the number of alleles for blood group in an individual :

(1) 1 (2) 2 (3) 3 (4) 4

13. The Darwinian fitness of an organism is a measure of :

(1) Its ability, relative to others in the population to pass its genes to the next generation

(2) The number of offspring it produces

(3) Its lifespan

(4) Its physical vigor

14. A potential danger to a population that has been greatly reduced in number is the :

(1) Hardy-Weinberg Disequilibrium (2) Tendency towards assortative mating

(3) Reduced gene flow (4) Loss of genetic variability

15. An isolated population of humans with approximately equal numbers of blue-eyed and brown-eyed individuals was decimated by an earthquake. Only a few brown-eyed people remained to form the next generation. This kind of change in the gene pool is called a :

(1) Hardy-Weinberg equilibrium (2) Blocked gene flow

(3) Bottleneck effect (4) Founder effect

16. The syndrome in humans in which individual's somatic cells contain the three sex chromosomes XXY is called :

(1) Klinefelter's syndrome (2) Turner's syndrome

(3) Down's syndrome (4) Superfemale

17. How does vaccination work?

(1) The immune system produces antibodies which stay in the blood

(2) Memory lymphocytes are produced. They remain in the body to fight off any future infection with the live pathogen.

(3) The dead pathogen stays in the body and constantly stimulates the immune system.

(4) All of the above

18. Which of the following is not a characteristics feature of arthropods?

(1) Joined appendages
(2) Unsegmented body
(3) Molting
(4) Articulated exoskeleton

19. The stages between larval molts in an insects are called :

(1) Pupae
(2) Instars
(3) Grubs
(4) Caterpillars

20. Which of the following animal is a reptile :

(1) Salamander
(2) Toad
(3) Newt
(4) Turtle

21. The secretion of tears, milk, sweat, and oil are functions of which tissue :

(1) Epithelial
(2) Nervous
(3) Loose connective
(4) Lymphoid

22. Collagen fibers are characteristic of which tissue?

(1) Muscle
(2) Epithelial
(3) Connective
(4) Nervous

23. The two organisms which breathe only through their moist skin are :

(1) Fish and frog
(2) Frog and earthworm
(3) Leech and earthworm
(4) Fish and earthworm

24. The alpha helices and beta sheets are the example of which level of protein organization?

(1) Primary structure
(2) Secondary structure
(3) Tertiary structure
(4) Quaternary structure

25. Trichoderma is an example of which of the following :

(1) Phycomycetes
(2) Zygomycetes
(3) Deuteromycetes
(4) Basidiomycetes

26. Lichen is an association between :

(1) Fungi and Bryophyte
(2) Fungi and Algae
(3) Algae and Pteridophyte
(4) Algae and Bacteria

27. The genetic material of viroid is a :

(1) DNA
(2) RNA
(3) Protein
(4) Carbohydrate

28. Mannitol is a stored food material found in members of which of the following :

(1) Chlorophyceae
(2) Xanthophyceae
(3) Rhodophyceae
(4) Phaeophyceae

29. Obliquely placed ovary and swollen placenta is associated with which of the following :

(1) Asteraceae
(2) Solanaceae
(3) Brassicaceae
(4) Malvaceae

30. On the basis of the position, of the ovary mustard plants are :

(1) Hypogynous
(2) Perigynous
(3) Epigynous
(4) Zygomorphic

31. The flower of Calotropis has the following aestivation :

(1) Twisted
(2) Imbricate
(3) Valvate
(4) Vexillary

32. The blood-brain barrier :

(1) Consists of both anatomical and physiological factors

(2) Regulates to some extent the passage of substances from the blood to the interstitial fluid of the brain

(3) Is anatomically related to the formation of tight junctions between adjacent capillary endothelial cells

(4) All of the above are correct

33. Cortisol is secreted by the adrenal cortex in response to stress. In addition to its function in a stress response, it functions in negative feedback by :

(1) Inhibiting the hypothalamus so that corticotropin releasing hormone (CRH) secretion is reduced.

(2) Inhibiting the anterior posterior's ability to respond to CRH by reducing the pituitary's sensitivity to CRH.

(3) Both (1) and (2) are correct.

(4) None of the above is correct

34. Why asexual reproduction is sometime disadvantageous?

(1) It allows animals that do not move around to produce offspring without finding mates

(2) It allows an animal to produce many offspring quickly

(3) It saves the time and energy of gamete production

(4) It produces genetically uniform populations

35. Which of the following is responsible for nourishing the developing sperm?

(1) Sertoli cells (2) Leydig cells

(3) Granulosa cells (4) Corpus luteum

36. What is the site of fertilization in mammals?

(1) Cervix (2) Uterus

(3) Vagina (4) Fallopian tubes

37. The number of autosomes in a normal human cell is :

(1) 44 (2) 45 (3) 46 (4) 48

38. Down's syndrome is associated with trisomy of chromosome number :

(1) 20 (2) 21 (3) 22 (4) 23

39. Which of the following is the site of translation of the mRNA?

(1) Nucleus (2) Nucleolus

(3) Golgi-body (4) Ribosomes

40. Okazaki fragments are formed during the following process :

(1) Transcription (2) Translation

(3) Reverse transcription (4) DNA Replication

41. Which of the following is the ultimate source of energy in an ecosystem?

(1) Sunlight (2) Producers

(3) Consumers (4) Decomposers

42. The interaction where one species is benefitted and the other is neither benefitted nor harmed is called as :

(1) Amensalism (2) Commensalism

(3) Mutualism (4) Predation

43. The detritus food chain begins with :

(1) Primary producers (2) Primary consumers

(3) Secondary consumers (4) Dead organic matter

44. What product of the immune system attaches to bacteria, making them easier to eat by white blood cells?

(1) Antigen
(2) Hemoglobin
(3) Antibody
(4) MHC I molecule

45. A patient with symptoms of allergies would have an elevation of which of the following?

(1) IgE
(2) white blood count
(3) IgM
(4) IgD

46. In anaphylactic shock, a substance is released which cause dilation of the blood vessels and capillary leaking. What is this substance called?

(1) Adrenalin
(2) Benadryl
(3) Albumin
(4) Histamine

47. Human proteins can be produced in the milk or semen of farm animals. True or false?

(1) true
(2) false, proteins cannot be produced in milk
(3) false, proteins cannot be produced in semen
(4) false, animals are not used for protein production

48. In a genetic engineering experiment restriction enzymes can be used for :

(1) Bacterial DNA only
(2) Viral DNA only
(3) Any DNA fragment
(4) Eukaryotic DNA only

49. Which of the following is used to select genes of interest from a genomic library?

(1) Restriction enzymes
(2) Cloning vectors
(3) Gene targets
(4) DNA probes

50. Cholesterol belongs to which of the following groups?

(1) Steroids
(2) Neutral fats
(3) Waxes
(4) Phospholipids

51. Which of the following occurs at the ribosomes?

(1) In most of a cell's DNA molecules are stored there
(2) Proteins are produced there
(3) mRNA are produced there
(4) DNA replication takes place there

52. The plane of cell wall formation in a dividing cell is determined by :

(1) Golgi apparatus
(2) Micro filaments
(3) Microtubules
(4) Endoplasmic reticulum

53. From the following, select the statement that is TRUE :

(1) All cells have a cell wall
(2) Animal cells contain microtubules but plant cells do not contain microtubules
(3) The Golgi apparatus is found only in animal cells
(4) Chloroplasts are found in plant cells but not in prokaryotic or animal cells

54. The volume of the air which remains in the conducting airways and is not available for gas exchange is called :

(1) Vital capacity
(2) Functional residual capacity
(3) Forced expiratory volume
(4) Anatomic dead space

55. Pear fruits are gritty due to the presence of :

(1) Tracheids (2) Vessels (3) Fibres (4) Sclereids

56. Which of the following growth hormone is associated with stomatal movements?

(1) Auxin (2) Gibberellin (3) ABA (4) Cytokinin

57. Denitrification is carried out by :

(1) Pseudomonas (2) Nitrobacter

(3) Nitrosomonas (4) Nitrococcus

58. Non-cyclic photophosphorylation results in the production of :

(1) ADP (2) ATP

(3) NADPH (4) ATP and NADPH

59. The site of glycolysis is :

(1) Cytoplasm (2) Chloroplast

(3) Mitochondrial matrix (4) Mitochondrial inner membrane

60. The first stable product of C4 pathway is :

(1) OAA (2) PGA (3) PGAL (4) DHAP

61. Energy equivalent of a NADH is the following number of ATP molecules :

(1) 2 (2) 3 (3) 38 (4) 36

62. Internodal elongation is associated with :

(1) Auxin (2) Cytokinin (3) Gibberellin (4) ABA

63. Cervical cancer can be caused by :

(1) *Chlamydia* spp
(2) Human papillomavirus
(3) Herpes simplex virus
(4) *Neisseria gonorrhoeae*

64. In human females, the ovarian cycle begins when the :

(1) Levels of estrogen reach their maximum
(2) Hypothalamus stimulates the anterior pituitary to increase its output of FSH and LH
(3) Level of progesterone drops precipitously
(4) Hypothalamus increases its release of FSH and LH

65. A vasectomy :

(1) Prevents the production of sperm in the testes
(2) Prevents the production of semen
(3) Prevents the movement of sperm into the urethra
(4) Prevents a man from having an erection

66. Sperm of animal species A cannot fertilize ovum of species B because :

(1) Fertilizin of A and antifertilizin of B are not compatible
(2) Antifertilizin of A and fertilizin of B are not compatible
(3) Fertilizin of A and B are not compatible
(4) Antifertilizin of A and B are not compatible

67. The unit of evolution is now known to be the :

(1) Individual
(2) Family
(3) Population
(4) Species

68. The population limited to a particular geographic area is called as :
(1) Pandemic (2) Endemic (3) Alien (4) Natural

69. Which of the following has the largest population in a food chain?
(1) Producers (2) Primary consumers
(3) Secondary consumers (4) Decomposers

70. The second trophic level of longer food chains in a lake is :
(1) Phytoplankton (2) Zooplankton
(3) Benthos (4) Fishes

71. The vertical distribution of different species occupying different levels is called as :
(1) Stratification (2) Fragmentation
(3) Mobilization (4) Mineralization

72. Widal test is specific for the diagnosis of which of the following diseases :
(1) Typhoid (2) Malaria
(3) Pneumonia (4) Common cold

73. Antibodies resemble which of the following shape :
(1) X (2) Y (3) Z (4) O

74. AIDS is caused by a :
(1) Retrovirus (2) DNA virus
(3) Viroid (4) Protein

75. Which of the following belongs to the class Gastropoda?
(1) Clam (2) Cuttlefish (3) Snail (4) Mussel

Space For Rough Work

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