

DCE Entrance Examination – Academic Session 2017

Total marks: 100 Time: 90 minutes

Answers all questions. Select the most appropriate answer. There will be no negative marks.

1. Due to discovery of which of the following in 1980, the evolution was termed as RNA world
 - a. M-RNA , t-RNA , r-RNA synthesis protein
 - b. In some viruses RNA is genetic material
 - c. RNA has enzymatic property
 - d. RNA is not found in all cells
2. Evolutionary history of an organism is known as
 - a. Ontogeny
 - b. Phylogeny
 - c. Ancestry
 - d. Paleontology
3. Which of the following is an example of negative feedback loop in humans
 - a. Secretion of tears after falling of sand particles into the eye
 - b. Salivation of mouth at the sight of delicious food
 - c. Secretion of sweat glands and constriction of skin blood vessels when it is too hot
 - d. Constriction of skin blood vessels and contraction of skeletal muscles when it is too hot
4. The term “New Systematic” was introduced by
 - a. Bentham and Hooker
 - b. Linnaeus
 - c. Julian Huxley
 - d. A.P. De Candolle
5. Amoebiasis is prevented by
 - a. Eating balanced food
 - b. Eating plenty of fluids
 - c. Drinking boiled water
 - d. Using mosquito nets
6. The book ‘Genera Plantarum’ was written by
 - a. Engler & Prantl
 - b. Bentham & Hooker
 - c. Bessey
 - d. Hutchinson
7. E.coli is used to extensively in biological research as it is
 - a. Easily cultured
 - b. Easily available
 - c. Easy to handle
 - d. Easily multiplied in host

8. During replication of a bacterial chromosome DNA synthesis starts from a replication origin site and
- RNA primers are involved
 - Is facilitated by telomerase
 - Move in one direction of the site
 - Moves in bi-directional way
9. Chlorophyll in chloroplasts is located in
- Grana
 - Pyrenoid
 - Stroma
 - Both grana and stroma
10. Which of the following represents the best stage to view the shape, size and number of chromosomes?
- Prophase
 - Metaphase
 - Interphase
 - Telophase
11. R.Q. is ratio of
- CO₂ produced to substrate consumed
 - CO₂ produced to O₂ consumed
 - Oxygen produced to water consumed
 - Oxygen produced to CO₂ consumed
12. Oxidative phosphorylation is production of
- ATP in photosynthesis
 - NADPH in photosynthesis
 - ATP in respiration
 - NADH in respiration
13. When one glucose molecules is completely oxidized, it changes
- 36 ADP molecules into 36 ATP molecules
 - 38 ADP molecules into 38 ATP molecules
 - 30 ADP molecules into 30 ATP molecules
 - 32 ADP molecules into 32 ATP molecules
14. Living cells contains 60-95% water. Water present in human body
- 60-65%
 - 50-55%
 - 75-80%
 - 65-70%

15. The four elements that make up 99% of all elements found in a living system is
- C, H, O and P
 - C, N, O and P
 - H, O, C and N
 - C, H, O and S
16. Blue eye color is recessive to brown eye color. A brown eyed man whose was blue eyed marries a blue-eyed women. The children will be
- Both blue eyed and brown eyed 1:1
 - All brown eyed
 - All blue eyed
 - Blue eyed and brown eyed 3:1
17. A man of A-blood group marries a woman of AB blood group. Which type of progeny would indicate that man is heterozygous A?
- AB
 - A
 - O
 - B
18. A gene pair hides the effect of other. The phenomenon is
- Epistasis
 - Dominance
 - Mutation
 - None of these
19. Two dominant nonallelicgenes are 50 map units apart. The linkage is
- Cis type
 - Trans type
 - Complete
 - Absent / incomplete
20. Genetic code consist of
- Adenine and guanine
 - Cytosine and uracil
 - Cytosine and guanine
 - All the above
21. The process of transfer of genetic information from DNA to RNA / formation of RNA from DNA
- Transversion
 - Transcription
 - Translation
 - Translocation

22. During DNA replication, the strands separate by
- DNA polymerase
 - Topoisomerase
 - Unwindase / helicase
 - Gyrase
23. Sex is determined in human being
- By ovum
 - At the time of fertilization
 - 40 days after fertilization
 - Seventh to eight week when genitals differentiate in foetus
24. Which of the following serves as a terminal codon?
- UAG
 - AGA
 - AUG
 - GCG
25. The RNA that pick up specific amino acid from amino acid pool in the cytoplasm to ribosome during protein synthesis is called
- r-RNA
 - RNA
 - m-RNA
 - t-RNA
26. Haemophilia is more common in males because it is a
- Recessive character carried by Y-chromosome
 - Dominant character carried by Y-chromosome
 - Dominant trait carried by X-chromosome
 - Recessive trait carried by X-chromosome
27. In Down's syndrome of male child, the sex complement is
- XO
 - XY
 - XX
 - XXY
28. G-6-P dehydrogenase deficiency is associated with haemolysis of
- Leucocytes
 - Lymphocytes
 - Platelets
 - RBCs

29. Vivipary is characteristic of
- Mesophytes
 - Xerophytes
 - Hydrophytes
 - Halophytes
30. Velamen is found in
- Roots of screwpine
 - Aerial and terrestrial roots of orchids
 - Leaves of Ficus elastica
 - Aerial roots of orchids
31. The principal pathway of water translocation in angiosperms is
- Sieve cells
 - Sieve tube elements
 - Xylem vessel system
 - Xylem and phloem
32. The CO₂ fixation during C₄ pathway occurs in the chloroplast of
- Guard cells
 - Bundle sheath cells
 - Mesophyll cells
 - Spongy parenchyma
33. Double fertilization and triple fusion were discovered by
- Hofmeister
 - Nawaschin and Guignard
 - Leeuwenhoek
 - Strasburger
34. When pollen of a flower is transferred to the stigma of another flower of the same plant, the pollination is referred to as
- Autogamy
 - Geitonogamy
 - Xenogamy
 - Allogamy
35. Male gametes in angiosperm are formed by the division of
- Generative cell
 - Vegetative cell
 - Microspore mother cell
 - Microspore
36. Component of blood responsible for producing antibodies is
- Thrombocytes
 - Monocyte
 - Erythrocytes
 - Lymphocyte

37. The life span of human WBC is approximately
- Between 2 to 3 months
 - More than 4 months
 - Less than 10 days
 - Between 20 to 30 days
38. Which of the following is not the main function of lymph glands
- Forming RBCs
 - Destroying bacteria
 - Forming WBCs
 - Forming antibodies
39. Which of the following substances, if introduced in to the blood stream, would cause coagulation of blood at the site of its introduction
- Prothrombin
 - Fibrinogen
 - Thromboplastin
 - Heparin
40. Vitamin K is required for
- Change of prothrombin into thrombin
 - Synthesis of prothrombin
 - Change of fibrinogen to fibrin
 - Formation of thromboplastin
41. Calcium deficiency in the body occurs in the absence of
- Vitamin C
 - Vitamin D
 - Vitamin B
 - Vitamin E
42. Which of the following carries glucose from digestive tract to liver
- Pulmonary vein
 - Hepatic artery
 - Hepatic portal vein
 - None of these
43. Continuous bleeding from an injured part of body is due to deficiency of
- Vitamin A
 - Vitamin B
 - Vitamin K
 - Vitamin E

44. Examination of blood of a person suspected of having anemia shows large, immature, nucleated erythrocytes without haemoglobin . supplementing his diet with which of the following is likely to alleviate his symptoms
- Iron compounds
 - Thiamine
 - Folic acid and cobalamine
 - Riboflavin
45. The carbon dioxide is transported via blood to lung mostly
- In combination with haemoglobin only
 - Dissolved in blood plasma
 - In the form of bicarbonate ions
 - As carbaminohaemoglobin and as carbonic acid
46. Although much CO₂ is carried in blood, yet blood does not become acidic, because
- CO₂ is continuously diffused through the tissue and is not allowed to accumulate
 - In CO₂ transport, blood buffers play an important role
 - CO₂ is absorbed by the leucocytes
 - CO₂ combines with water to form H₂CO₃ which is neutralized by NaCO₃
47. At high altitude , the RBCs in the human blood will
- Increase in number
 - Decrease in number
 - Increase in size
 - Decrease on size
 - e.
48. Lungs are enclosed in
- Periosteum
 - Perichondrium
 - Pericardium
 - Pleural membrane
49. When 1500 ml air remains after expiration in the lungs, it is called
- Residual volume
 - Inspiratory reserve volume
 - Vital capacity
 - Tidal volume
50. How the transport of CO₂ and O₂ by blood happens
- With the help of WBCs and blood serum
 - With the help of platelets and corpuscles
 - With the help of RBCs and blood plasma
 - With the help of RBCs and WBCs
51. The CO₂ content by volume, in the atmospheric air is about
- 3.34%
 - 4%
 - 0.0314%
 - 0.34%

52. The exchange of gases in the alveoli of the lungs takes place by
- Passive transport
 - Active transport
 - Osmosis
 - Simple diffusion
53. The respiratory centers, which control inspiration and expiration, are located in
- Diencephalon
 - Medulla oblongata
 - Cerebellum
 - Spinal cord
54. Haemoglobin is a type of
- Carbohydrate
 - Respiratory pigment
 - Vitamin
 - Skin pigment
55. An average person not doing hard work requires energy per day about
- 2000 kcal
 - 1000 kcal
 - 750 kcal
 - 2800 kcal
56. When CO₂ concentration in blood increases breathing becomes
- Shallower and slow
 - There is no effect on breathing
 - Slow and deep
 - Faster and deeper
57. Tricuspid valve is found in between
- Sinus venosus and right atrium
 - Right atrium and right ventricle
 - Left ventricle and left atrium
 - Ventricle and aorta
58. Removal of calcium from freshly collected blood would
- Cause delayed clotting
 - Prevent clotting
 - Cause immediate clotting
 - Prevent destruction of haemoglobin
59. A vein possesses a large lumen because
- Tunica media and tunica externa from a single coat
 - Tunica interna and tunica media from a single coat
 - Tunica interna, tunica media and tunica externa are thin
 - Tunica media is a thin coat

60. Wall of blood capillary is formed of
- Haemocytes
 - Parietal cells
 - Endothelial cells
 - Oxyntic cells
61. In veins, valves are present to check backward flow of blood flowing at
- Atmospheric pressure
 - High pressure
 - Low pressure
 - All of these
62. The correct route through which pulse-making impulse travels in the heart is
- SA node → purkinje fibers → bundle of his → AV node → heart muscles
 - SA node → AV node → bundle of his → purkinje fibres → heart muscles
 - AV node → bundle of his → SA node → purkinje fibers → heart muscles
 - AV node → SA node → purkinje fibers → bundle of his → heart muscles
63. An adult human with average health has systolic and diastolic pressure as
- 120 mm Hg and 80 mm Hg
 - 50 mm Hg and 80 mm Hg
 - 80 mm Hg and 80 mm Hg
 - 70 mm Hg and 120 mm Hg
64. Which the principal cation in the plasma of the blood
- Pottasium
 - Magnesium
 - Calcium
 - Sodium
65. Difference between pulmonary artery and pulmonary vein is that, the pulmonary artery has
- No endothelium
 - Valves
 - Thicker walls
 - Oxygenated blood
66. The cardiac pacemaker in a patient fails to function normally. The doctors find that an artificial pacemaker is to be grafted in him. It is likely that it will be grafted at the site of
- Atrioventricular bundle
 - Purkinje system
 - Sinatrial node
 - Atrioventricular node
67. You are required to draw blood from a patient and to keep it in a test tube for analysis of blood corpuscles and plasma. You are also provided with the following four types of test tubes. Which of these will you not use for the purpose
- Test tube containing calcium bicarbonate
 - Chilled test tube
 - Test tube containing heparin
 - Test tube containing sodium oxalate

68. AIDS is caused by HIV that principally infects
- All lymphocytes
 - Activator B cells
 - Cytotoxic T cells
 - T4 lymphocytes
69. Damage to thymus in a child may lead to
- A reduction in haemoglobin content of blood
 - A reduction in stem cell production
 - Loss of antibody mediated immunity
 - Loss of cell mediated immunity
70. Brush border is characteristic of
- Neck of nephron
 - Collecting tubule
 - Proximal convoluted tubule
 - All of the above
71. The ornithine cycle removes two waste products from the blood in liver. These products are
- Carbon dioxide and ammonia
 - Ammonia and uric acid
 - Carbon dioxide and urea
 - Ammonia and urea
72. A person is undergoing prolonged fasting. His urine will be found to contain abnormal quantities of
- Fats
 - Amino acid
 - Glucose
 - Ketones
73. The net pressure gradient that causes the fluids to filter out of the glomeruli in to the capsule is
- 50 mm Hg
 - 75 mm Hg
 - 20 mm Hg
 - 30 mm Hg
74. Angiotensinogen is a protein produced and secreted by
- Juxtaglomerular cells
 - Macula densa cells
 - Endothelial cells
 - Liver cells
75. Total number of bones in each limb of a man is
- 24
 - 30
 - 14
 - 21

76. Sternum is connected to ribs by

- a. Bony matter
- b. White fibrous cartilage
- c. Hyaline cartilage
- d. Areolar tissue

77. The contractile protein of skeletal muscle involving ATPase activity is

- a. Troponin
- b. Tropomyosin
- c. Myosin
- d. a-actinin

78. Which of the following cranial nerves can regulate heart beat?

- a. X
- b. IX
- c. VIII
- d. VII

79. Vagus nerve is which cranial nerve

- a. X
- b. IX
- c. VII
- d. V

80. The Nissl's granule of nerves cells are made up of

- a. DNA
- b. RNA
- c. Ribosome
- d. Protein

81. When we migrate from dark to light, we fail to see for sometime but after a time visibility becomes normal. It is an example of

- a. Accommodation
- b. Adaptation
- c. Mutation
- d. Photoperiodism

82. Insulin is a

- a. Vitamin
- b. Lipid
- c. Hormone
- d. Enzyme

83. The immediate cause of induction of ovulation in human female is the large plasma surge of

- a. LH
- b. FSH
- c. Progesterone
- d. Estradiol

84. The hormone which regulates the basal metabolism in our body is secreted from
- Adrenal cortex
 - Pancreas
 - Pituitary
 - Thyroid
85. Adrenaline directly affects on
- S.A node
 - B-cells of langerhans
 - Dorsal root of spinal nerve
 - Epithelial cells of stomach
86. Which one of the following hormone is modified amino acid
- Epinephrine
 - Progesterone
 - Prostaglandin
 - Estrogen
87. Which hormone causes dilatation of blood vessels, increased oxygen consumption and gluconeogenesis
- Glucagon
 - ACTH
 - Insulin
 - Adrenaline
88. What is true about cleavage in the fertilized egg in humans
- It starts while the egg is in fallopian tube
 - It starts while the egg reaches uterus
 - It is meroblastic
 - It is identical to the normal mitosis
89. Foetal sex can be determined by examining cells from the amniotic fluid by looking for
- Chiasmata
 - Kinetochores
 - Barr bodies
 - Autosomes
90. Which of the following hormones is not a secretion product of human placenta?
- Human chorionic gonadotropin
 - Prolactin
 - Estrogen
 - Progesterone
91. Which part of ovary in mammals acts as an endocrine gland after ovulation?
- Stroma
 - Germinal epithelium
 - Vitelline membrane
 - Graffian follicle

92. In the human female, menstruation can be deferred by the administration of
- Combination of FSH and LH
 - Combination of estrogen and progesterone
 - FSH only
 - LH only
93. Give the correct matching of causative agent / germ and disease
- Anopheles-malaria
 - Leishmania-sleeping sickness
 - Glossina-kala-azar
 - Wuchereria-filariasis
94. Athletes generally suffer from
- Tachycardia
 - Bradycardia
 - Dyspnoea
 - Cardiac arrhythmias
95. In a normal ECG recording, heart sound will occur
- On the P wave and the end of QRS complex
 - On the QRS complex and the end of T wave
 - At the end of P wave and on the T wave
 - At the end of QRS complex and o T wave
96. During fatigue
- Blood supply to muscles stops
 - Muscles cannot relax
 - Nerves become inactive
 - Muscles fail to stimulate
97. Oxygen dissociation curve of hemoglobin is
- Sigmoid
 - Slope
 - Straight line
 - Parabola
98. The sprinkling of water reduces the temperature of a closed room because
- The temperature of water is less than that of the room
 - The specific heat of water is high
 - Water has large latent heat of vaporisation
 - Water is bad conductor of heat

99. A person is wearing spectacles with concave lenses for correcting vision. While not using the glasses, the image of a distant object in his case will be formed

- a. On the blind spot
- b. Behind the retina
- c. In front of the retina
- d. On the yellow spot

100. Bohr effect is related with

- a. Oxidised phosphorus level in blood
- b. Reduced carbon level in lymph
- c. Reduced oxygen level in hemoglobin
- d. Reduced carbon dioxide level in blood