JEMAS(PG)-2023 **QB No: 3103200001**

Subject: M. Phil in Regenerative Medicine & Translational Sciences (M. Phil RMTS)

Duration: 90 minutes **No of MCQ: 100** **Full Marks: 100**

INSTRUCTIONS

1. All questions are of objective type having four answer options for each.
2. **Category-1**: Carries **1** mark each and only one option is correct. In case of incorrect answer or any combination of more than one answer, ¼ mark will be deducted.
3. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C, or D.
4. Use only **Black/Blue ink ball point pen** to mark the answer by filling up of the respective bubbles completely.
5. Write Question Booklet number and your roll number carefully in the specified locations of the **OMR** sheet. Also fill appropriate bubbles.
6. Write your name (in block letter), name of the examination center and put your signature (as is appeared in Admit Card) in appropriate boxes in the **OMR sheet**.
7. The OMR sheet is liable to become invalid if there is any mistake in filling the correct bubbles for Question Booklet number/roll number or if there is any discrepancy in the name/ signature of the candidate, name of the examination center. The OMR sheet may also become invalid due to folding or putting stray marks on it or any damage to it. The consequence of such invalidation due to incorrect marking or careless handling by the candidate will be sole responsibility of candidate.
8. Candidates are not allowed to carry any written or printed material, calculator, pen, log-table, wristwatch, any communication device like mobile phones, bluetooth devices etc. inside the examination hall. Any candidate found with such prohibited items will be **reported against** and his/her candidature will be summarily cancelled.
9. Rough work must be done on the Question Booklet itself. Additional blank pages are given in the Question Booklet for rough work.
10. Hand over the OMR sheet to the invigilator before leaving the Examination Hall.
11. Candidates are allowed to take the Question Booklet after examination is over.

Signature of the Candidate: _____

(As in Admit Card)

Signature of the Invigilator: _____

1. Which among the following fishes does not have Central Nervous System?
   (A) DogFish.
   (B) CuttleFish.
   (C) JellyFish.
   (D) Star Fish.

2. Chlorophyll absorbs which of the wavelength of the Sun light?
   (A) Green & Blue.
   (B) Green & Red.
   (C) Red & Blue.
   (D) Red & Yellow.

3. Which among the following plays a role in production of alcohol in beer??
   (A) Bacteria.
   (B) Protozoan.
   (C) Virus.
   (D) Yeast.

4. In which of the following conditions a person is born with both ovarian and testicular tissues i.e. both female & male organs?
   (A) Swyer syndrome.
   (B) Penile agenesis.
   (C) Polyorchidism.
   (D) Hermaphroditism.

5. Who among the following is best known for his discovery and development of the first safe and effective polio vaccine?
   (A) Jonas Salk.
   (B) David Bodian.
   (C) Almroth Wright.
   (D) Albert Sabin.

6. Which of the following chemicals are used in dry cleaning?
   1. Naphtha.
   2. Benzene.
   3. Tetrachloroethylene.

   Select the correct option from the codes given below:
   (A) Only 1 & 2.
   (B) Only 2 & 3.
   (C) Only 1 & 3.
   (D) 1, 2 & 3.

7. As per the Mohs scale of mineral hardness, which of the following are soft metals?
   1. Gold.
   2. Copper.
   3. Diamond.
   4. Thorium.

   Select the correct option from codes given below:
   (A) 1 & 4 Only.
   (B) 1, 2 & 4 Only.
   (C) 2 & 4 Only.
   (D) 1, 2, 3 & 4.

8. The patient is instructed to drink which of the following solutions before undergoing radiological examinations?
   (A) Barium sulphate.
   (B) Sodium chloride.
   (C) Strontium phosphate.
   (D) Germanium tetrachloride.

9. What do we call the process in which no exchange of heat energy takes place between the gas and the surroundings?
   (A) Adiabatic.
   (B) Isothermal.
   (C) Isochoric.
   (D) Isobaric.

10. Which of the following is correct about reverse biasing?
   (A) The barrier height increases.
   (B) The depletion region widens.
   (C) Both a and b.
   (D) None of the above.

11. What is Rose metal?
   (A) It is an alloy of Nickel, Tin and Zinc.
   (B) It is an alloy of Bismuth, Copper and Palladium.
   (C) It is an alloy of Palladium, Tin and Lead.
   (D) It is an alloy of Bismuth, Tin and Lead.

12. Which of the following is a naturally occurring alloy of Gold and Silver?
   (A) Bronze.
   (B) Electrum.
   (C) Duralumin.
   (D) Nordic gold.

13. In which of these waters synthetic detergents can be used?
   (A) Hard water.
   (B) Soft water.
   (C) Both hard water and soft water.
   (D) None of the above.

14. Viral nucleocapsid is a combination of __?
   (A) Genome and capsid.
   (B) Capsid and spikes.
   (C) Envelope and capsid.
   (D) Capsomere and genome.

15. The blue pigment of Molluscan blood is haemocyanin from?
   (A) Iron.
   (B) Magnesium.
   (C) Copper.
   (D) Manganese.

16. Which is the first member of Alkyne series?
    (A) Methyne.
    (B) Acetylene.
    (C) Propyne.
    (D) Ethene.

17. Which of the following is a reducing sugar?
    (A) β-methylgalactosidase.
    (B) Sucrose.
    (C) Gluconic acid.
    (D) Galactose.

18. Which of the following is a heterotrophic plant?
    (A) Parasitic.
    (B) Insectivorous.
    (C) Symbiotic.
    (D) All of these.

19. Only right aortic arches are present in :
    (A) Reptilia.
    (B) Mammals.
    (C) Birds.
    (D) Fishes.

20. On average, how many litres of urine does a normal adult excrete per day?
    (A) 1 to 1.5 L.
    (B) 2 to 2.5 L.
    (C) 3 to 3.5 L.
    (D) 5 to 5.5 L.

21. Melatonin is a hormone secreted by :
    (A) Pituitary gland.
    (B) Gonads.
    (C) Pineal gland.
    (D) Adrenal glands.

22. Which of the following is not a degenerative disease?
    (A) Hypertension.
    (B) Atherosclerosis.
    (C) Obesity.
    (D) Alzheimer's disease.

23. Which of the following is known as the "Father of Genetics"?
    (A) Morgan
    (B) Mendel.
    (C) Watson.
    (D) Bateson.

24. The method that silencing specific mRNA due to the binding of complementary dsRNA is called?
    (A) Electrophoresis.
    (B) RNAi.
    (C) rDNA technology.
    (D) DNAi.

25. When a single gene controls the expression of more than one character, it is said to be ___:
(A) Heterotrophic.
(B) Autotrophic.
(C) Pleiotropic.
(D) Allotropic.

26. Diaphragm is a means of contraception. It is fixed ____:
(A) Over cervix.
(B) In the uterus.
(C) In the fallopian tube.
(D) None of the above.

27. During heavy exercise, we get cramps in the legs due to the accumulation of ____:
(A) Carbon dioxide.
(B) Water.
(C) Lactic acid.
(D) Alcohol.

28. 0°K is equivalent to which of the following in Centigrade?
(A) 273°C.
(B) -273°C.
(C) 0°C.
(D) 100°C.

29. Because of which of the following, the sky appears blue?
(A) Atmospheric water vapour.
(B) Scattering of light.
(C) Reflection on sea water.
(D) Emission of blue wavelength by the sun.

30. A concave lens always forms an image which is
(A) Real and erect.
(B) Virtual and erect.
(C) Real and inverted.
(D) Virtual and inverted.

31. Which among the following causes Hydrophobia?
(A) Virus.
(B) Bacteria.
(C) Protozoan.
(D) Worm.

32. Which among the following is the first country to issue research licenses for human embryonic cloning to create stem cells?
(A) United States.
(B) Australia.
(C) Germany.
(D) Britain.

33. Syphilis is caused by which of the following bacteria?
(A) Treponemapallidum.
(B) Yersinia pestis.
(C) Neisseria gonorrhoeae.
(D) Campylobacter.

34. Name the muscle which works opposite to each other?
(A) Cardiac Muscles.
(B) Skeletal Muscle.
(C) Antagonists's muscle.
(D) Stapedius muscle.

35. Which of the following are also called natural killer cells?
(A) Monocytes.
(B) Thrombocytes.
(C) Lymphocytes.
(D) Neutrophils.

36. Name the hardest material present in the body?
(A) Dentin.
(B) Pulp.
(C) Enamel.
(D) None of the above.

37. Which one of the following hormones through synthesized elsewhere, is stored and released by the master gland?
(A) Melanocyte stimulating hormone.
(B) Antidiuretic hormone.
(C) Prolactin.
(D) Luteinizing hormone.

38. Which of the following diseases can be transmitted to humans during milking?
(A) Foot and mouth disease.
(B) Smallpox.
(C) Ranikhet.
(D) Cowpox.

39. Biodegradable wastes can usually be converted into useful substances with the help of ____:
(A) Bacteria.
(B) Viruses.
(C) Nuclear proteins.
(D) Radioactive substances.

40. Which of the following is a communicable disease?
I. Malaria
II. Tuberculosis
III. Measles
(A) Only II.
(B) Only III.
(C) Both I and III.
(D) Both II and III.

41. All of the following are proapoptotic proteins except:
(A) Bax.
(B) Bid.
(C) Bcl-2.
(D) Bak.

42. All of the following are anti apoptotic proteins except:
    (A) Bcl-x1.
    (B) Bcl-2.
    (C) BCL-6.
    (D) None of the above.

43. The most abundant protein found in the red cell membrane is:
    (A) Glycoprotein.
    (B) Lipoprotein.
    (C) Mucoprotein.
    (D) Nucleoprotein.

44. Shape of any cell is maintained by:
    (A) Microtubules.
    (B) Spindle fibres.
    (C) Endoplasmic reticulum.
    (D) Membrane proteins.

45. No change in genetic material occurs in which of the following cytogenetic abnormalities:
    (A) Deletions.
    (B) Insertion.
    (C) Translocation.
    (D) Inversion.

46. Preferential expression of the gene depending upon the parent of origin is called:
    (A) Genomic imprinting.
    (B) Anticipation.
    (C) Mosaicism.
    (D) Pleotropism.

47. genomic imprinting includes:
    (A) DNA methylation.
    (B) Histone deacetylation.
    (C) Histone methylation.
    (D) All of the above.

48. Isochromosomes are:
    (A) Duplication of one arm,when the other arm is lost.
    (B) Rearrangement within chromosome involving two breaks.
    (C) Loss of a portion of arm of chromosomes.
    (D) Transfer of a segment of one chromosome to another.

49. Ubiquitinated proteins are destroyed by:
    (A) Proteosome.
    (B) Endosome.
    (C) Aggresome.
    (D) Microsome.

50. Intron splicing occurs in:
    (A) Nucleus.
    (B) Cytoplasm.
    (C) Golgi body.
    (D) Both (A) and (B).

51. Which coagulation factor has the shortest half-life?
    (A) Factor-7.
    (B) Factor-8.
    (C) Factor-5.
    (D) Factor-13.

52. What is the chance of a daughter of a severe Hemophilia A to be a carrier state?
    (A) 75.
    (B) 25.
    (C) 50.
    (D) 100.

53. Specific/secondary granules appear at which stage of granulocyte development:
    (A) Myeloblast.
    (B) Metamyelocyte.
    (C) Myelocyte.
    (D) Promyelocyte.

54. Which of the following is not found in primary granules?
    (A) Myeloperoxidase(MPO).
    (B) Elastase.
    (C) Proteinase-3.
    (D) Lactoferrin.

55. Which of the following is found in all the types of granules in granulocytic stages(via., primary, secondary, tertiary:
    (A) Defensin.
    (B) Myeloperoxidase.
    (C) Lysozyme.
    (D) Lactoferrin.

56. True statement about Myeloperoxidase is:
    (A) Located in primary and secondary granules of neutrophils.
    (B) A lipophilic dye.
    (C) Not inhibited by heparin.
    (D) Not seen in eosinophilic granule.

57. Primary(azurophilic) granules start appearing at which stage of granulocyte development?
    (A) Promyelocyte.
    (B) Myeloblast.
    (C) Metamyelocyte.
    (D) Myelocyte.

58. Neutrophil alkaline phosphatase activity is found in:
    (A) Neutrophil.
    (B) Eosinophil.
    (C) Myeloblast.
    (D) Monocyte.

59. Thalassemia control has been most successful in:
(A) USA.
(B) Cyprus.
(C) Iraq.
(D) Thailand.

60. Major cause of death in thalassemia major is due to:
(A) Endocrinopathies.
(B) Cardiomyopathies.
(C) Liver failure.
(D) Infection.

61. The most common cause of alpha thalassemia is
(A) Point mutation
(B) Insertion.
(C) Deletion
(D) All are equally distributed.

62. Red Cells Indices:
Evolution of RBC saturation with H_b. (32 – 36%)
(A) MCV.
(B) MCH
(C) MCHC
(D) None of the above

63. ABO blood group is an example of:
(A) Co-dominance.
(B) Autosomal Dominant.
(C) Autosomal Recessive.
(D) Mitochondrial Inheritance.

64. Frameshift mutation occurs due to?
(A) Transition.
(B) Transversion.
(C) Insertion.
(D) Point Mutation.

65. The best suited nucleated cell for chromosomal study
(A) Neutrophils.
(B) Lymphocytes.
(C) Epithelial cells.
(D) Langerhans cells.

66. F -body is:
(A) Y chromatin.
(B) RNA virus.
(C) X chromatin.
(D) Chromosome-21.

67. Bridging fibrosis in large wounds is due to:
(A) Keatinocyte growth factor.
(B) Epidermal growth factor.
(C) Platelet derived growth factor
(D) Transforming growth factor-beta.

68. Major cytokine involved in fibrosis:
    (A) Transforming growth factor -alpha.
    (B) Transforming growth factor-beta.
    (C) Fibroblast growth factor.
    (D) Epidermal growth factor.

69. Oval stem cells are located in:
    (A) Canal of Schlemm.
    (B) Canal of Herring.
    (C) Space of Disse.
    (D) Basal lamina of Myotubles.

70. Stem cells are present in:
    (A) Cornea.
    (B) Base of crypts.
    (C) Bile duct of liver.
    (D) Mesonephros

71. Epigenetic Factors refer to:
    (A) Histone methylation.
    (B) Histone phosphorylation.
    (C) DNA methylation.
    (D) All of the above.

72. Function of peroxisomes is :
    (A) Protein synthesis.
    (B) Carbohydrate metabolism.
    (C) Generating H_2O_2.
    (D) DNA replication.

73. Type of mutation in sickle cell anemia:
    (A) Insertion.
    (B) Deletion.
    (C) Point Mutation.
    (D) Framedhift mutation.

74. Chimeric DNA is used for:
    (A) Paternity testing.
    (B) Maternity testing.
    (C) Personal identification.
    (D) Organ transplantation.

75. Which is increased in blood after overnight fasting:
    (A) Insulin.
    (B) Glucose.
    (C) Unesterified fatty acid.
    (D) TAG.

76. Main transporter of cholesterol to peripheral tissue is:
    (A) HDL.
    (B) LDL.
    (C) IDL.
    (D) VLDL.

77. Best investigation for HBA1C:
(A) Affinity chromatography.
(B) Ion exchange chromatography.
(C) HPLC.
(D) Electrophoresis.

78. Which of the following glycoprotein has both lubricant and protective action?
(A) Immunoglobulin.
(B) Mucin.
(C) Collagen.
(D) Albumin.

79. All of the following are true about sickle cell disease except:
(A) Mutation in alpha chain.
(B) SYMPTOMS AMELIORATED BY HbF.
(C) Venoocclusive cries in cause of morbidity.
(D) Bone pain is presenting feature.

80. Pulse pressure is:
(A) 1/3 diastolic + 1/2 systolic B.P.
(B) 1/2 diastolic + 1/3 systolic B.P Bid.
(C) Systolic-diastolic B.P.
(D) Diastolic +1/2 systolic B.P.

81. The most suitable test to assess iron stores is:
(A) Serum Iron.
(B) Serum Ferritin.
(C) TIBC.
(D) Transderrin saturation.

82. RDW is an indication of which of the following:
(A) Anisocytois.
(B) Poikilocytosis.
(C) Macrocytosis.
(D) Mirocytosis.

83. The glucolysis is regulated by:
(A) Hexokinase.
(B) Phosphofructokinase.
(C) Pyruvate Kinase.
(D) All of these.

84. End product of purine catabolism:
(A) Urea.
(B) Beta alanine.
(C) Uric Acid.
(D) Ammonia.

85. Zinc is cofactor of which enzyme:
(A) Carbonic anhydrase.
(B) Lysyl oxidase.
(C) Carboxylase.
(D) Kinase.

86. Which of the following is most potent naturally occurringanti-oxidant:
(A) Vitamin B12.
(B) Vitamin A.
(C) Vitamin C.
(D) Vitamin E.

87. Wernicke's encephalopathy is due to deficiency of which vitamin?
(A) Vitamin B1.
(B) Vitamin B2.
(C) Vitamin B3.
(D) Vitamin B12.

88. Vitamin which helps in iron absorption:
(A) Vitamin B1.
(B) Vitamin B2.
(C) Vitamin C.
(D) Vitamin E.

89. Isoelectric point is when:
(A) Net charge of protein is zero.
(B) Mass of protein is zero.
(C) Protein.
(D) Denaturation of protein occurs.

90. Biuret test is used for detection of:
(A) Protein.
(B) Cholesterol.
(C) Steroid.
(D) Sugar.

91. Hemoglobin A (HbA) is the most common adult form of haemoglobin, which consists of
(A) 2 alpha and 2 gamma subunits.
(B) 4 gamma subunits.
(C) 2 alpha and 2 beta subunits.
(D) 2 alpha and 2 delta subunits.

92. Which of the following statement is Not Correct with respect to Deoxyribonucleic Acid
(DNA)
(A) It is found in prokaryotic and eukaryotic cells and in many viruses.
(B) The DNA molecule consists of a single strand that is made of deoxyribose and phosphate
groups.
(C) DNA codes genetic information for the transmission of inherited traits.
(D) Each strand has a backbone made of alternating sugar (deoxyribose) and phosphate
groups.

93. Krebs Cycle
(A) Occurs inside the mitochondria
(B) Produces energy in the form of ATP
(C) The first product of Krebs cycle is Citric acid so it is also called Citric acid cycle
(D) All of the above are true

94. PCR(Polymerase Chain Reaction) which is not correct
    (A) There is only one step in the process called “Denaturation”.
    (B) Requires TaqDNA polymerase.
    (C) Two primers are required for a single length of DNA sequence to be copied.
    (D) Primers are short sequence of nucleotides.

95. DNA is present in the
    (A) Mitochondria of a cell.
    (B) Nucleus of a cell.
    (C) Only in (a).
    (D) (a) and (b) both.

96. Migration of cancerous cells from the site of origin to other part of the body forming
    secondary tumours is called
    (A) Proliferation.
    (B) Diapedesis.
    (C) Apoptosis.
    (D) Metastasis.

97. Regarding amino acids which of the statement is not correct
    (A) Are small molecules containing carbon, hydrogen, oxygen, nitrogen and in some cases also
    sulphur.
    (B) Essential amino acids are those that are essential for human body.
    (C) Lysine and Arginine are basic amino acids.
    (D) Proteins are made up of amino acids.

98. The internal lining in the trachea is made up of?
    (A) Simple cuboidal epithelium.
    (B) Pseudostratified ciliated columnar epithelium.
    (C) Simple squamous epithelium.
    (D) Transitional epithelium.

99. The life span of red blood cells is?
    (A) 30 days.
    (B) 100 days.
    (C) 120 days.
    (D) 180 days.

100. Which of the following organelle in a cell is called “Suicidal Bag”?

    (A) Mitochondria.
    (B) Endoplasmic Reticulum.
    (C) Lysosome.
    (D) Ribosome.

ROUGH WORK ONLY