

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

23-0009-AS

TEST BOOKLET

MEDICAL SCIENCE

PAPER – I

(Time Allowed: 3 hours)

(Maximum Marks: 300)

INSTRUCTIONS TO CANDIDATES

Read the instructions carefully before answering the questions: -

1. This Test Booklet consists of 12(twelve) pages and has 75 (seventy-five) items (questions).
2. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
3. Please note that it is the candidate's responsibility to fill in the Roll Number and other required details carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet and the Separate Answer Booklet. Any omission/discrepancy will render the OMR Answer Sheet and the Separate Answer Booklet liable for rejection.
4. Do not write anything else on the OMR Answer Sheet except the required information. Before you proceed to mark in the OMR Answer Sheet, please ensure that you have filled in the required particulars as per given instructions.
5. Use **only Black Ball Point Pen** to fill the OMR Answer Sheet.
6. This Test Booklet is divided into 4 (four) parts – **Part – I, Part – II, Part – III and Part – IV.**
7. All three parts are **Compulsory.**
8. **Part-I consists of Multiple Choice-based Questions.** The answers to these questions have to be marked in the OMR Answer Sheet provided to you.
9. **Part-II, Part-III and Part-IV consist of Conventional Essay-type Questions.** The answers to these questions have to be written in the separate Answer Booklet provided to you.
10. In Part-I, each item (question) comprises of 04 (four) responses (answers). You are required to select the response which you want to mark on the OMR Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
11. After you have completed filling in all your responses on the OMR Answer Sheet and the Answer Booklet(s) and the examination has concluded, you should hand over to the Invigilator **only the OMR Answer Sheet and the Answer Booklet(s).** You are permitted to take the Test Booklet with you.
12. **Penalty for wrong answers in Multiple Choice-based Questions:**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to the question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to the question.
 - (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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PART - I
(Multiple Choice-based Questions)

Instructions for Questions 1 to 50:

- *Choose the correct answers for the following questions.*
- *Each question carries 3 marks.*

[3x50=150]

1. Which of the following does not form part of the quadriceps?
 - (a) Vastus Lateralis
 - (b) Vastus Medialis
 - (c) Rectus Femoris
 - (d) Biceps Femoris
2. A condition in which the kidneys are unable to conserve water -
 - (a) Diabetes mellitus
 - (b) Diabetes insipidus
 - (c) Gestational diabetes
 - (d) Diabetic coma
3. What does a rise in the anti-HBc immunoglobulin in a patient indicate?
 - (a) Acute infection
 - (b) Carrier state
 - (c) Prodromal phase
 - (d) Convalescence
4. Cytopathic effect or cytopathogenic effect refers to structural changes in host cells that are caused by invasion of –
 - (a) Virus
 - (b) Bacteria
 - (c) Spirochete
 - (d) Anaerobia
5. Facial nerve is the cranial nerve
 - (a) 5th
 - (b) 2nd
 - (c) 7th
 - (d) 4th
6. Which of the following is a muscle relaxant?
 - (a) Scoline
 - (b) Pentazocine
 - (c) Hyoscin
 - (d) Phenylephrine

7. Ibuprofen is contraindicated in patients having –
- (a) Fever
 - (b) Asthma
 - (c) Amoebic Dysentery
 - (d) Bronchitis
8. Mural thrombi are thrombi located in the –
- (a) Heart chamber
 - (b) Valve Cusp
 - (c) Veins
 - (d) Arteries
9. Against which of these does heterozygous sickle cell anaemia give protection?
- (a) G6PD
 - (b) Malaria
 - (c) Thalassemia
 - (d) Dengue fever
10. Which one of the following lack antigen receptors?
- (a) Natural killer cells
 - (b) Dendritic cells
 - (c) Langerhan's cells
 - (d) Macrophages
11. Egg shell calcification of Hilar Lymph node is associated with which of the following?
- (a) Silicosis
 - (b) Asbestosis
 - (c) Byssinosis
 - (d) Anthracosis
12. Through which of these mechanisms does phagocytes kill bacteria?
- (a) Membrane attack complex killing
 - (b) Oxidative and non-oxidative killing
 - (c) Zipper killing
 - (d) Chemotaxis
13. Human placenta is classified as _____
- (a) Mesoeliochorial
 - (b) Epitheliochorial
 - (c) Haemochorial
 - (d) Endotheliochorial

14. Multinucleated giant cells are least likely to be found in which of the following disorders?
- (a) Streptococcus pneumonia
 - (b) Sarcoidosis
 - (c) Blast mycosis
 - (d) Autism
15. Which of the following statements about erythrocytes is correct?
- (a) They fight infection
 - (b) They clot blood
 - (c) They lack a nucleus
 - (d) They are produced in the spleen
16. What are the symptoms of a Pulmonary Embolism (PE)?
- 1. Shortness of breath
 - 2. Chest pain
 - 3. Dizziness
- (a) Only 1
 - (b) 1 and 2
 - (c) 1 and 3
 - (d) 1, 2 and 3
17. Which of the following clinical sign indicates ischaemia of forearm?
- (a) Carpel tunnel syndrome
 - (b) Hand of benediction
 - (c) Ulnar claw
 - (d) Volkmann's Contracture
18. Which one of the following does not put a fetus at increased risk of a deformation?
- (a) Oligohydramnios
 - (b) Bicornuate uterus
 - (c) Polyhydramnios
 - (d) Triplet pregnancy
19. The common organism causing lobar pneumonia is -
- (a) Staph aureus
 - (b) Strep pyogenes
 - (c) Pneumococcus
 - (d) H. influenza
20. Pseudo membranous colitis is caused by -
- (a) Clostridium welchii
 - (b) Clostridium difficile
 - (c) Yersinia
 - (d) Pseudomonas aeruginosa

21. Which of the following is a marker of active Hepatitis B?
- (a) HBsAg
 - (b) IgM Anti HBsAg
 - (c) HBe Ag
 - (d) IgG Anti HBsAg
22. Which hormone plays an important role in significant proliferation of fat around the breast?
- (a) Oestrogen
 - (b) Progesterone
 - (c) FSH
 - (d) Testosterone
23. Causative organism of syphilis is-
- (a) Chlamydia trachomatis
 - (b) Treponema pallidum
 - (c) Pox virus
 - (d) Haemophilus ducreyi
24. The thickest layer in the wall of an artery is called?
- (a) Tunica media
 - (b) Tunica intima
 - (c) Tunica externa
 - (d) None of the above
25. General feeling of irritability and tiredness may be due to lack of -
- (a) proteins
 - (b) carbohydrates
 - (c) fats
 - (d) vitamins
26. Cryptorchidism is a condition in which _____
- (a) Male hormones are not reactive
 - (b) Ovaries are removed
 - (c) Sperms are not formed
 - (d) Testes fail to descend in scrotal sacs
27. What happens to insoluble fibre when you eat it?
- (a) The fibre is broken down in the stomach
 - (b) The fibre is broken down in the small intestine
 - (c) The fibre is broken down in the large intestine
 - (d) The fibre passes through the gastrointestinal tract

28. Parameters used to assess nutritional status include -
- (a) Serum albumin
 - (b) Triceps skin-fold thickness
 - (c) White cell count
 - (d) Handgrip strength
29. Blood supply to neck and head of the femur is mainly from?
- (a) Lateral circumflex femoral artery
 - (b) Superficial epigastric artery
 - (c) Artery of ligamentum teres
 - (d) Medial circumflex femoral artery
30. Identify the correct set of vitamins that are fat soluble vitamins from the given sets -
- (a) A, B, D, K
 - (b) A, D, E, K
 - (c) A, B, E, K
 - (d) A, C, E, K
31. The amino acid required for the synthesis of haemoglobin -
- (a) Glutamine
 - (b) Glutamic acid
 - (c) Glycine
 - (d) Lysine
32. Synthesis of protein occurs in?
- (a) Mitochondria
 - (b) Poly ribosomes
 - (c) Nucleus
 - (d) Golgi bodies
33. The range of pH is very high in which of the following secretions?
- (a) Gastric juice
 - (b) Pancreatic juice
 - (c) Bile in gall bladder
 - (d) Saliva
34. In excitable cells repolarization is closely associated with which one of the following events?
- (a) Na efflux
 - (b) Na influx
 - (c) K efflux
 - (d) K influx

35. Which of the following is a biological anticoagulant?
- (a) EDTA
 - (b) Sodium citrate
 - (c) Hirundine
 - (d) Double oxalate mixture
36. The ESR as an estimator of overall inflammation depends on which of these?
- (a) Viscidity
 - (b) Fibrinogen
 - (c) Rouleaux
 - (d) All of the above
37. The neuromuscular transmitter released at neuromuscular junction is -
- (a) Dopamine
 - (b) Epinephrine
 - (c) Nor epinephrine
 - (d) Acetylcholine
38. DNA cells have all nucleotides *except* -
- (a) Adenine
 - (b) Guanine
 - (c) Cytosine
 - (d) Uracil
39. The site of ADH action is -
- (a) Proximal tubule
 - (b) Loop of Henle
 - (c) Vasa recta
 - (d) Collecting tubule
40. Which of the following does not go into chronic hepatitis stage?
- (a) HBV
 - (b) HCV
 - (c) HDV
 - (d) HEV
41. Immunity that is conferred to the foetus by transfer of IgG and IgA antibodies is called -
- (a) Active acquired immunity
 - (b) Passive acquired immunity
 - (c) Natural active immunity
 - (d) Passive natural immunity

42. Which of the following is a recommended method for sterilizing surgical instruments?
- (a) Wiping with alcohol
 - (b) Cleaning with soap and water
 - (c) Autoclaving
 - (d) Soaking in disinfectant solution
43. Quinidine medicine is prescribed for the treatment of -
- (a) Atrial fibrillation
 - (b) Hypertension
 - (c) Angina
 - (d) All of these
44. What is the CD4 T-cell count at which AIDS is considered to have developed?
- (a) Below 1,000 per cubic millilitre
 - (b) Below 500 per cubic millilitre
 - (c) Below 200 per cubic millilitre
 - (d) Below 50 per cubic millilitre
45. A decrease in the total amount of red blood cells in the blood -
- (a) Thrombocytopenia
 - (b) Anemia
 - (c) Thrombocythemia
 - (d) None of these
46. A condition when *NO* oxygen reaches the brain -
- (a) Cerebral ischemia
 - (b) Cerebral anoxia
 - (c) Cerebral hypoxia
 - (d) Apoptosis
47. RLFP is used to identify a specific -
- (a) Protein
 - (b) DNA
 - (c) RNA
 - (d) Both DNA and RNA
48. What are the 3 phases of Dengue fever?
- (a) Coalescing, trivial and serious
 - (b) Staging, growing and spreading
 - (c) Febrile, Critical, and Convalescent
 - (d) None of the above

49. What is the morphology of the herpes virion?
- (a) Complex with a membrane and tegument and icosahedron core
 - (b) Baggy virion with over 50 types of spikes
 - (c) Compact icosahedron structure
 - (d) Small round virus
50. Causative organism of chancroid is-
- (a) Chlamydia trachomatis
 - (b) Treponema pallidum
 - (c) Pox virus
 - (d) Haemophilus ducreyi

PART - II
(Short Answer-type Questions)

Instructions for Questions 51 to 63:

- **Write the answers in short for any 10 (TEN) out of the thirteen questions.**
- **Each question carries 5 marks.** **[5x10=50]**

51. Define bioavailability of drug? What is the bio availability of drug when given orally?
52. Mention four major drug interactions in an alcoholic individual.
53. Cite five differences between DNA and RNA.
54. What are the clinical features of benign and malignant tumors?
55. Explain the components of Virchow's triad briefly.
56. Write a note on lab diagnosis of filariasis.
57. Define antigenic drift and antigenic shift.
58. What is methanol poisoning? What is its antidote?
59. Elaborate the findings of autopsy in case of drowning.
60. Discuss the role of scaphoid in the abduction and adduction movements of wrist joint.
61. Write a note on course of saphenous vein.
62. Define sarcomere. Mention normal length of sarcomere.
63. What is the general function of aqueous humor and vitreous humor?

PART - III
(Long Answer-type Questions)

Instructions for Questions 64 to 71:

- Answer any 5 (FIVE) out of the eight questions.
- Each question carries 10 marks.

[10x5=50]

64. Discuss the clinical anatomy of urinary bladder.
65. Describe the parts, blood supply, development and histology of pancreas.
66. Write the differences between penetrating and perforating injuries.
67. Describe the life cycle of entamoeba histolytica.
68. Mention four oncogenic viruses giving the details of oncogenic effects of any one of the viruses.
69. Classify anti-hypertensive drugs and write the anti-hypertensives contraindicated in pregnancy.
70. Describe the pathways of methionine metabolism.
71. During the cardiac cycle the heart fills with blood and then the ventricles contract. The table below gives the filling time and the contraction time at different heart rates -

Heart rate/ beats per minute	Filling time /seconds	Contraction time/ seconds
40	0.38	1.15
50	0.39	0.85
71	0.39	0.47
81	0.39	0.36
88	0.40	0.32

- (a) Derive two observations from the figures in the above table.
- (b) Explain the process of diastole and systole of the cardiac cycle.

PART - IV
(Essay-type Questions)

Instructions for Questions 72 to 75:

- ***Answer any 2 (TWO) out of the four questions.***
- ***Each question carries 25 marks.*** ***[25x2= 50]***

72. Describe in detail the synthesis and functions of thyroid hormones. Add a note on hypothyroidism.

73. Enumerate and discuss in detail the hypersensitivity reactions and their types. Add a note on Schwartzman reaction.

74. Define shock, enumerate its types and discuss in detail the pathogenesis of each type including morphological changes.

75. What are corticosteroids and state its uses. Discuss in detail about the adverse effects of corticosteroids.
