

MEDICAL SCIENCE
(Paper I)

Time Allowed : Three Hours

Maximum Marks : 250

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

The number of marks carried by a question/part is indicated against it.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

SECTION 'A'

1. Answer all the following:

10×5=50

- (a) Describe the zones and lobes of prostate gland. Add a note on applied anatomy of benign prostatic hypertrophy.
- (b) Name the lateral descending tracts. List the effects of their lesion. What will happen to sensory loss in the lesion around central canal of spinal cord?
- (c) Describe the morphological characteristics of platelets and their functions. What will happen in their deficiency?
- (d) Give a brief account of the mechanism of locking and unlocking of knee joint.
- (e) Enumerate the various anti-oxidant vitamins and write about any one of them.

- 2. (a) Write the various roles of calcium in the body. How is blood calcium level regulated? **20**
- (b) Explain the term Ovulation. Name the hormones necessary for ovulation. How is the knowledge of ovulation time helpful? **15**
- (c) Enumerate the branches of facial nerve and write a brief note on Bell's palsy. **15**
- 3. (a) Define sleep. What are the different types of sleep? What are the differences in sleep of a newborn compared to that of an adult? What type of waves will be seen in electroencephalographic record in deep sleep? **20**
- (b) Describe the effects of damage to radial nerve at the level of deltoid tuberosity. **15**
- (c) What is obstructive jaundice? Enumerate the various biochemical tests which you would prescribe to the patient. Write their biochemical basis of changes you expect. **15**
- 4. (a) Describe the boundaries of inguinal canal. Add a note on the anatomy of different types of inguinal hernias. **20**
- (b) What are the functions of placenta? What do you mean by feto-placental unit? **15**
- (c) What are the advantages of breast-feeding? Why is there amenorrhoea during lactation? **15**

SECTION 'B'

5. Answer all the following:

10×5=50

- (a) Describe the pre-malignant lesions in oral mucosa.
- (b) Discuss the role of Natural Killer (NK) cells and Antibody Dependent Cytotoxic Cells (ADCC).
- (c) Write down the mechanism of action of Cyclophosphamide and its adverse effects.
- (d) Describe the pathological changes and complications of Acute Osteomyelitis.
- (e) A dead body of a woman aged about 30 years was found in the river water. Describe how the autopsy surgeon will ascertain on post-mortem examination that the death was due to drowning.
6. (a) Define and classify Diabetes mellitus. Discuss the pathophysiology of Type-2 diabetes. What are the complications of uncontrolled diabetes? **20**
- (b) Write the mechanism of analgesic effect of morphine. Mention the adverse reactions of morphine and the antidotal treatment in its poisoning. **15**
- (c) Discuss the etiology of bacillary dysentery and its laboratory diagnosis. **15**
7. (a) A 25-year-old young male has been brought for medical examination to the hospital by the police with alleged history of committing rape on a 12-year-old girl. How will the medical officer proceed to examine and what laboratory investigations shall be carried out and what type of material shall be preserved to establish whether he has committed the alleged crime or not? **20**
- (b) A young female has consumed carbolic acid accidentally. How will you establish the diagnosis and treat the patient? Describe the expected post-mortem findings in the event of death of such a patient. **15**
- (c) Write the general mechanism of action of antimicrobial drugs. Discuss the mechanism of action and adverse reactions of penicillins. **15**
8. (a) Discuss the pathogenicity of poliovirus infection. How is this virus isolated during surveillance programme? **20**
- (b) What are the characteristic features of a malignant tumour? Discuss the pathways of cancer spread. **15**
- (c) Discuss the mechanism of the following vasodilator drugs: (i) Nifedipine (ii) Glyceryl trinitrate **15**