

MEDICAL SCIENCE
(Paper I)

Time Allowed : Three Hours

Maximum Marks : 300

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.

SECTION 'A'

1. Answer any four of the following:

15×4=60

- (a) Describe the blood supply, nerve supply and lymphatic drainage of the mammary gland.
- (b) Describe the gross anatomy of the thoraco-abdominal diaphragm. Mention the structures that pass through it.
- (c) Define consciousness. Which areas of the brain are mainly responsible for it? What are the disturbances of consciousness?
- (d) What are the differences between sympathetic and parasympathetic divisions of autonomic nervous system? Why are parasympathetic nerves called nerves of tomorrow?
- (e) In 1977, Rosalyn Yalow was awarded the Nobel Prize in Medicine for innovating an important technique which was considered a breakthrough in endocrinology. What is this technique? Describe, briefly, the principle behind this technique.

- 2. (a) Describe the development of the testis. **20**
- (b) Explain its descent into the scrotal sac. **20**
- (c) Add a note on its anomalies. **20**
- 3. (a) What are the functional divisions of cerebellum? What will happen in lesion of each? **20**
- (b) Discuss in short the morphology, functions and disorders of platelets. **20**
- (c) Define menstrual cycle. What changes occur in the uterus during the cycle? Name the common disorders of the menstrual cycle. **20**
- 4. (a) Define cardiac output. What factors maintain it? What happens to it during exercise and how? **20**
- (b) There is a precise molecular mechanism for initiating and terminating the synthesis of a polypeptide on ribosome. Explain in your own terms what happens if the termination has failed. **20**
- (c) What is real time polymerase chain reaction (rt. PCR)? How does it differ from regular polymerase chain reaction? How does this technique help to examine the single nucleotide polymorphism? **20**

SECTION 'B'

5. Answer any four of the following:

- (a) Explain the role of extracellular matrix (ECM) in tissue repair.
- (b) Give the etiopathogenesis and morphology of membranoproliferative glomerulonephritis.
- (c) Describe the mechanism of action and adverse effects of drugs used to treat hypertension during pregnancy.
- (d) What are insulin analogues? Describe their mechanism of action and advantages over regular insulin.
- (e) Describe how you will proceed to examine the “scene of crime in a case of hanging”. Describe the differentiating features between hanging and strangulation on postmortem examination.
6. (a) Describe the renal changes in diabetes mellitus. 15
- (b) Give the pathogenesis of corneal neoplasia. 15
- (c) Discuss briefly the following:
- (c)(i) Pathogenesis, laboratory diagnosis and prophylaxis of Dengue 8
- (c)(ii) Pathogenesis, laboratory diagnosis and prophylaxis of Candidiasis 7
- (d) Discuss laboratory diagnosis of malaria with special reference to new approaches to the diagnosis of malaria. 15
7. (a) Describe the mechanism of action and adverse effects of Vasodilators used in Hypertensive Urgency/Emergency. 20
- (b) Enumerate the drugs used in Ascariasis and describe their mechanism of action and adverse effects. 20
- (c) Describe the mechanism of action and adverse effects of ‘M-phase’ specific anti-cancer drugs. 20
8. (a) Describe in brief about the causes of death from wounds. 20
- (b) Describe in brief about Dactylography. 20
- (c) Enumerate the drugs of abuse. How will you investigate a death due to poisoning by an overdose of drug of abuse? 20