

Question Paper

Exam Date & Time: 02-May-2024 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Instructions: Answer ALL questions.

Pharmacology-2 [PHA 3.1T-S2]

Marks: 70

Duration: 180 mins.

Section A

Answer all the questions.

Long Answer Questions (3 x 10 marks = 30 marks)

- 1) Compare and contrast intrinsic and extrinsic pathways of apoptosis. Provide detailed explanations of the molecular events and signaling pathways involved in each pathway. Discuss their significance in physiological and pathological conditions. (10)
- 2) Classify anticoagulant with examples? Discuss the mechanism of action of warfarin and low molecular weight heparins. Compare and contrast the action of heparin and warfarin (10)
- 3) Discuss the bacterial cell wall synthesis and with examples, explain how the various antibacterial drugs inhibit it. (10)

Section B

Answer all the questions.

Short Answer Questions (6 x 5 marks = 30 marks)

- 4) Your team has discovered a new beta 2 adrenergic agonist that can specifically affect glucose metabolism in the body through cAMP activation. Can you predict the signal transduction mechanism of this new chemical entity? (5)
- 5) Summarize the source, signs, symptoms, and management of heavy metal poisoning (5)
- 6) Briefly write the mechanism of action and toxicities of vasopressin (5)
- 7) Explain the mechanism of cephalosporins and discuss the uses of 3rd generation cephalosporins with examples (5)
- 8) A drug named prednisone was prescribed to a patient who had undergone bone marrow transplantation. Justify the rationale and mechanism of prednisone for this therapeutic use. (5)
- 9) A patient with Hodgkin lymphoma underwent monotherapy with doxorubicin at a dose of 60 to 75 mg/m² IV once on the first day of a 21-day cycle and subsequently a maximum cumulative dose of 500 mg/m² was administered to the patient. After a week patient developed chest pain and ECG of the patient showed ST segment elevation with elevated serum troponin levels. Can you
A) Identify the target organ affected in this patient. Justify your answer.
B) What could be the reason for the target organ toxicity?
C) Suggest an approach for the management of the patient's condition.
D) Is the toxicity preventable? If so, how it could be done? (5)

Section C

Answer all the questions.

Give Reasons for the Following (5 x 2 marks = 10 marks)

- 10) Provide a thorough explanation supported by relevant evidence for the assertion: Salmonella typhi exhibits inherent resistance to penicillin. (2)

- 11) List and elaborate on the factors contributing to the development of superinfections after extended use of broad-spectrum antibiotics. (2)
- 12) Perform a comprehensive analysis, highlighting various facets, of combining zidovudine and stavudine for anti-HIV treatment. (2)
- 13) Elucidate the underlying reasons for the resistance of aerobic organisms to metronidazole. (2)
- 14) Compare and justify the selection between leucovorin and folic acid as adjuncts with methotrexate in therapeutic applications. (2)

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