

Question Paper

Exam Date & Time: 04-Jul-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Instructions: Answer ALL questions.

Pharmacology-2 [PHA 3.1T-S3]

Marks: 70

Duration: 180 mins.

Section A

Answer all the questions.

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

- 1) A new chemical entity was developed for the treatment of lung cancer. In the cell line study, it demonstrated that it upregulates the p53 gene and induced apoptosis of the cell. Can you explain the signal transduction pathway of this new chemical entity with relevant diagrams? (10)
- 2) With the help of a flow chart, depict the plasminogen-plasmin system and the drugs modulating it. Discuss two major drugs modulating this system with the comparison of their pharmacological action, side effect and uses. (5+5) (10)
- 3) Discuss the types and mechanisms of antimicrobial drug resistance. With suitable examples, explain the categories of resistant bacteria. (6+4) (10)

Section B

Answer all the questions.

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

- 4) A mammalian ileum was developed which only expresses recombinant receptors having extracellular and transmembrane domains of the M3 receptor of acetylcholine and intracellular domain of alpha-1 receptor having affinity to Gq protein which can open potassium channel. Explain the action of adrenaline and acetylcholine on this receptor with its signal transduction mechanism. (5)
- 5) Explain the common reasons for a death of a patient after consuming a poison? Suggest general management procedures that can be adapted to prevent the death of the person. (5)
- 6) Discuss the mechanism of action and uses of acetazolamide. (5)
- 7) Explain the antimicrobial spectrum and adverse effects of tetracycline. (5)
- 8) Discuss the role of various components of the innate immune response. (5)
- 9) A breast cancer patient after mastectomy was administered 5-fluorouracil at a dose of 500 mg/m² IV for a single dose on days 1 and 8 of a 28-day cycle. She developed vomiting during 5-fluorouracil administration and continued for 2 subsequent days after the dose was administered. Later at the end of 28 days, she had a small cut in her hand while cutting the fruits and the bleeding did not stop for several minutes. The clinician subsequently ordered for complete blood cell count which indicated thrombocytopenia and leukocytopenia. What could be the reason for:
a) Vomiting after the injection of the 5-fluorouracil.
b) Why is the patient suffering from thrombocytopenia and leukocytopenia?
c) Is vomiting preventable? If so, how it can be prevented?
d) How stem cell therapy can be helpful in the management of thrombocytopenia and leukocytopenia? (5)

Section C

Answer all the questions.

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

- 10) Assess and write the reason for the type of nutritional deficiency due to prolonged use of oral neomycin. (2)
- 11) Explain the post-antibiotic effect. Name two drugs which exert it. (2)
- 12) Give the reason for INH-induced peripheral neuritis. (2)
- 13) Why ribavirin should not be combined with zidovudine? (2)
- 14) Comment on the combination of aspirin and warfarin. (2)

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