

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: B.Pharm.  
BRANCH: PHARMACY

SEMESTER: IV  
SESSION: SP2022

SUBJECT: BP404T-Pharmacology-I

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
  2. Before attempting the question paper, be sure that you have got the correct question paper.
  3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
  4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.
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PART-I

Multiple choice questions (Instruction: Answer all questions)

Q1. (20 x 1 = 20 Marks)

- A. Which of the following statements is **FALSE** regarding idiosyncratic reaction?
- a) It is an uncharacteristic reaction of the drug.
  - b) It may be due to genetic cause.
  - c) It is mild in severity.
  - d) It is not predictable and uncommon.
- B. Which of the following statements is **TRUE** regarding drug discovery process?
- a) It only encompasses the non-clinical laboratory and animal testing.
  - b) It is the process which ascertains the effectiveness and safety of potential drug candidates.
  - c) It is the process by which therapeutic compounds are formulated into medicines.
  - d) It ensures there are no side-effects associated with the potential drug candidates.
- C. Action of glucagon and insulin on blood sugar level is the example of:
- a) physical antagonism.
  - b) physiological antagonism.
  - c) chemical antagonism.
  - d) receptor mediated non-competitive antagonism.
- D. Appearance of characteristic toxic effects of a drug in an individual at therapeutic doses is called \_\_\_\_\_.
- a) idiosyncrasy
  - b) poisoning
  - c) hypersensitivity
  - d) intolerance
- E. Sulfotransferase is an enzyme responsible for:
- a) transfer of sulphur to the drug molecule during metabolism.
  - b) transfer of sulphate to the drug molecule during metabolism.
  - c) removal of sulphur from the drug molecule during metabolism.
  - d) removal of sulphate from the drug molecule during metabolism.
- F. Which of the following statements is **TRUE** regarding plasma protein binding of drugs?
- a) Highly plasma protein bound drugs are eliminated faster from the system.
  - b) The plasma protein  $\beta$  globulin binds to drugs with weak basic characteristics.
  - c) Binding of drug to the plasma proteins is normally irreversible.
  - d) Bound fraction of the drug is not responsible for eliciting pharmacological response.

- G. Drug A was administered at 50 mg intravenous bolus dose and the initial plasma drug concentration was found to be 2.5 µg/mL. Calculate the volume of distribution of drug A.
- 10 L
  - 15 L
  - 20 L
  - 25 L
- H. Which of the following statements regarding routes of drug administration is **INCORRECT**?
- Intravenous administration provides a rapid response.
  - Intramuscular administration requires a sterile technique.
  - Inhalation provides slow access to the general circulation.
  - Subcutaneous administration may cause local irritation.
- I. A rectal suppository is used to treat a fever. This would represent what type of drug delivery?
- Parenteral and local
  - Parenteral and systemic
  - Enteral and local
  - Enteral and systemic
- J. Which of the following neurotransmitters possesses inhibitory and excitatory effects?
- Glutamate
  - Aspartate
  - Acetylcholine
  - Gamma amino butyric acid
- K. Which of the following agents are centrally acting skeletal muscle relaxant?
- Mephenesin
  - Dantrolene
  - Diazepam
  - Baclofen
- I and II only
  - II and III only
  - I, III and IV only
  - I, II, III and IV
- L. Which of the following anticholinesterase possess irreversible inhibition?
- Pyridostigmine
  - Edrophonium
  - Donepezil
  - Ecothiophate
- I and II only
  - I and IV only
  - II and III only
  - I, II and III only
- M. Which of the following enzymes facilitate conversion of noradrenaline to adrenaline?
- Hydroxylase
  - Decarboxylase
  - N-methyltransferase
  - N-acetyltransferase

N. Which of the following adrenergic agents used to stimulate central nervous system?

- a) Xylometazoline
- b) Amphetamine
- c) Salbutamol
- d) Dopamine

O. In which of the following stages of anaesthesia results respiratory failure?

- a) Stage 1 of anaesthesia
- b) Stage 2 of anaesthesia
- c) Stage 3 of anaesthesia
- d) Stage 4 of anaesthesia

P. Which of the following anaesthetic agent is administered intravenously?

- a) Nitrous oxide
- b) Enflurane
- c) Propofol
- d) Ether

Q. Binding site for benzodiazepine at the GABA receptor is located at which of the following interface?

- a)  $\alpha$  and  $\gamma$  subunit
- b)  $\beta$  and  $\gamma$  subunit
- c)  $\beta$  and  $\alpha$  subunit
- d)  $\alpha$  and  $\alpha$  subunit

R. Which of the following central nervous system disorders can be treated with barbiturates?

- I. Convulsant
- II. Insomnia
- III. Anaesthesia
- IV. Depression

- a) I and II only
- b) II and III only
- c) I, II and III only
- d) I, II, III and IV

S. Phenobarbital is used in which of the following epileptic conditions?

- a) Tonic-clonic seizure
- b) Absence seizure
- c) Myoclonic seizure
- d) Simple partial seizure

T. Which of the following statements related to alcohol is **FALSE**?

- a) Alcohol synergises with anxiolytics.
- b) Alcohol caused hyperglycaemia acutely with sulfonylureas.
- c) Alcoholics are prone to paracetamol toxicity.
- d) Aspirin cause more gastric bleeding when taken with alcohol.

**PART-II**  
**Short Answers**  
(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. Differentiate the advantages of sublingual routes of administration over oral administration.
- Q3. Discuss the consequences of drug metabolism with suitable examples.
- Q4. Explain enterohepatic circulation with clear diagram.
- Q5. Schematically present the IP<sub>3</sub>-DAG effector pathway of G-protein coupled receptors.
- Q6. Describe how the enzyme inducers alter the pharmacokinetics of concomitantly administered drugs?
- Q7. Discuss different phases of clinical trial.
- Q8. Write a note on parasympathetic nervous system.
- Q9. List down **FOUR** amino acid neurotransmitters. Write note on any one of the amino acid neurotransmitters.
- Q10. Define sedative and hypnotics. Describe the mechanism of action of benzodiazepines.

**PART-III**  
**Long Answers**  
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. Classify parasympatholytic agents and explain the pharmacology of atropine in different body systems.
- Q12. Describe the mechanism of action of depolarizing neuromuscular blockers act as muscle relaxant. Give **FOUR** examples and the uses of this category of drugs.
- Q13. Discuss mechanism of action, pharmacokinetics, adverse effects and therapeutic uses of carbamazepine

:::::28/04/2022:::::