

Time: 3 Hours

Total Marks:100

Please check that you have received the correct question paper.

Instructions to the candidates:

- i) All questions are compulsory. Choice is internal
- ii) Figures to the right indicate full marks.
- iii) Draw structures and diagrams wherever necessary.

- Q1 A) Fill in the blanks: (Any three)** **3**
- i) Pizza comprising 12.5 grams carbohydrate, 11 grams fats, 14 grams proteins, 10 mg water-soluble vitamins, 2 mg potassium and 5 mg sodium will provide _____ kcal.
 - ii) Bomb calorimeter measures the _____ value of different food components.
 - iii) _____ provides double the energy provided by carbohydrates or proteins.
 - iv) Jaggery is a good source of _____
 - v) The unit of RQ is _____.
- Q1 B) Give the physiological roles/significance of any one of the following:** **3**
- i) Net protein utilization
 - ii) Iron and zinc
- Q1 C) Attempt any one:** **6**
- i) In detail, plan a balanced diet for a 10 year old.
 - ii) Discuss the importance of anthropometry in nutritional studies, citing any two anthropometry indices.
- Q1 D) Attempt any one:** **8**
- i) In detail, explain the clinical significance of calcium in bone health. Also, mention its other physiological functions.
 - ii) What are the different categories of nutritional status? Elaborate on each of them.
- Q2 A) Fill in the blanks: (Any three)** **3**
- i) The normal blood pressure is _____ mm Hg.
 - ii) A diabetic should consume foods with a low _____ index.
 - iii) The fat-soluble vitamin with high antioxidant activity is _____.
 - iv) A diet high in saturated fat can be linked to _____
 - v) More than half of our diet should comprise of _____.
- Q2 B) Define and explain any one of the following:** **3**
- i) Aspartame
 - ii) Jaundice

- Q2 C) Attempt any one:** **6**
- i) Suggest any three foods to be avoided and any three foods to be consumed by a diabetic individual. Give detailed reasons for the same.
 - ii) Justify: Obstructive jaundice can be effectively managed by diet.
- Q2 D) Attempt any one:** **8**
- i) Mr Subhash is hypertensive. Elaborate in detail the diet to be followed by him.
 - ii) Write an elaborate note on obesity and its dietary management.
- Q3 A) Fill in the blanks: (Any three)** **3**
- i) Acidic drugs are absorbed in _____.
 - ii) _____ substances cannot permeate membranes by passive diffusion.
 - iii) Type I biotransformation reactions include _____.
 - iv) If pharmacologic effect is plotted versus drug concentration for most agents, the shape of the graph is _____.
 - v) _____ route of drug administration is most likely to lead to first-pass effect.
- Q3 B) Define and explain any one of the following:** **3**
- i) Volume of distribution
 - ii) Therapeutic index
- Q3 C) Write a short note on any one of the following:** **6**
- i) Clinical Trials
 - ii) Bioassays
- Q3 D) Write an elaborate note on any one of the following:** **8**
- i) Absorption of drugs via the gastrointestinal tract
 - ii) Biotransformation of drugs
- Q4 A) Fill in the blanks: (Any three)** **3**
- i) If a ligand can produce maximal effects and has high efficacy it is called as _____.
 - ii) Antimetabolites exhibit _____ interactions.
 - iii) _____ is the study of mechanism of action of drugs.
 - iv) cAMP is the secondary messenger for _____.
 - v) Steroidal drugs have _____ receptor.
- Q4 B) Define and explain any one of the following:** **3**
- i) Antagonist
 - ii) Antiseptics
- Q4 C) Attempt any one:** **6**
- i) Citing examples, elaborate on the action of anti-metabolites. Explain how antimetabolites are used in cancer therapy.
 - ii) Discuss the mechanism of action and adverse drug reactions of salicylates.

Q4 D) Attempt any one:

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- i) Elaborate on the different drug receptor interactions. Also, add a note on the different receptors based on their cellular location and mechanism of action.
- ii) Explain in detail the mechanism of action and adverse drug reactions associated with: (a) Calcium channel blocker (b) Beta blocker.

Q5 A) Answer any four of the following:

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- i) Which are the major electrolytes in the physiological system? Explain their functions in detail.

OR

- i) Discuss the different parameters for energy assessment.
- ii) Justify: Bland diet is traditionally suggested for peptic ulcer.

OR

- ii) Define and explain dietary management and its significance.
- iii) What is the blood-brain barrier? Explain the qualities that a drug should possess in order to cross the blood-brain barrier.

OR

- iii) Differentiate between: Bioavailability and bioequivalence
- iv) Discuss the mechanism of action of penicillin.

OR

- iv) Justify: 'Omeprazole acts as a pro-drug'

Q5 B) State True or False: (Any four)

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- i) Complex carbohydrates provide one with short term energy
- ii) Males have a higher BMR than females
- iii) At pH 9.0, morphine (a weak base containing an ionizable amine group, pKa of 7.0) would exist predominantly in the charged form
- iv) The plasma drug concentration versus time curve for a drug eliminated by zero order kinetics is linear
- v) Binding of drugs to albumin is irreversible
- vi) Most drugs are distributed homogeneously.
