

Q.P. Code : 05374

(2½ Hours)

[Total Marks : 75

- N.B. :** (1) All the question are **compulsory**. **Choice is internal**.
(2) **Figures** to the **right** indicate **Full Marks**.
(3) All questions carry **equal marks**.
(4) Draw **flowcharts / diagrams** wherever **necessary**.

1. (A) Choose the most appropriate answer (**any three**) : **3**
- (i) RQ is _____ for a mixed diet.
(a) 0.7 (b) 0.8 (c) 1.0
- (ii) In a meal, _____ percentage of total calories, should be obtained from fats, in adults.
(a) 15-20 (b) 20-30 (c) 50-60
- (iii) Albumin has a chemical score of _____.
(a) 0 (b) 100 (c) 50
- (iv) Burger containing 25g carbohydrates, 10 gram and 5 gms proteins will provide after metabolism _____ kcal energy.
(a) 210 kcal (b) 201 kcal (c) 220 kcal
- (v) _____ is not a protein energy malnutrition disorder.
(a) Marasmus (b) Obesity (c) Kwashiorkor
- (vi) Amongst the following _____ is richest source of omega fatty acids.
(a) olive oil (b) groundnut oil (c) peanut oil
- (B) Define and explain (**any one**) : **2**
- (i) Dietary fibre
(ii) Net Protein Utilization
- (C) Write a note on **any one** : **4**
- (i) Role of sodium and calcium in nutrition.
(ii) Measures used in Anthropometry.

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(D) Answer **any one** of the following :

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- (i) Discuss the factors affecting BMR.
- (ii) Write an elaborate note on balanced diet.

2. (A) Choose the most appropriate answer (**any three**) :

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- (i) Diabetics are at increased risk of heart disease if they also _____.
 - (a) have low LDL cholesterol levels
 - (b) have high HDL cholesterol levels
 - (c) have high LDL cholesterol levels
- (ii) _____ has the highest glycemic index.
 - (a) Kulfi
 - (b) Cream biscuit
 - (c) Dextrose
- (iii) _____ should be avoided in case of peptic ulcers.
 - (a) Coffee
 - (b) Milk
 - (c) Honey
- (iv) An individual is considered obese, when BMI is _____.
 - (a) < 25
 - (b) > 25
 - (c) < 20
- (v) Food _____ diet is served for instant energy.
 - (a) high in fat and high in carbohydrates
 - (b) high in fat and low in carbohydrates
 - (c) low in fat and high in carbohydrates
- (vi) A diet restricted in _____ is preferred for hypertensives.
 - (a) Na⁺
 - (b) Ca⁺⁺
 - (c) Mg⁺⁺

(B) Answer **any one** :

2

- (i) Define - Glycemic index
- (ii) What are blood sugar levels in a normal individual (i) 2 hours after meal (ii) 14 hours after meal ?

(C) Write dietary plan for **any one** of the following :

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- (i) Obstructive Jaundice
- (ii) Peptic Ulcers

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(D) Attempt **any one** of the following :

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- (i) Mr. Kapoor is 45 years old company executive suffering from Diabetes mellitus. Suggest a diet as per his body requirement.
- (ii) Plan a diet for Ali who suffers from hypertension.

3. (A) Choose the most appropriate answer (**any three**) :

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- (i) Bioavailability is dependent on _____.
 - (a) rheological parameters of blood
 - (b) amount of a substance obtained orally and quantity of intake
 - (c) extent of absorption and hepatic first-pass effect
- (ii) Drugs possessing _____ can cross brain-blood barrier.
 - (a) high lipid solubility
 - (b) low lipid solubility
 - (c) high water solubility
- (iii) _____ molecules can't permeate membranes by passive diffusion.
 - (a) Ionized
 - (b) Non-ionized
 - (c) Hydrophilic
- (iv) Biotransformation of a drug involves _____.
 - (a) Cyt P450
 - (b) Cyt b
 - (c) Cyt a
- (v) Weakly acidic drugs are excreted best in _____ urine.
 - (a) acidic
 - (b) basic
 - (c) neutral
- (vi) The bioavailability of a drug is calculated with reference to drug administered by _____ route.
 - (a) oral
 - (b) intravenous
 - (c) intramuscular

(B) Define / explain **any one** of the following :

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- (i) Drug plasma concentration
- (ii) Blood brain barrier

(C) Write a note on **any one** of the following :

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- (i) Clinical trials
- (ii) Biotransformation

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(D) Answers **any one** of the following :

- (i) Explain the process of drug absorption through the gastrointestinal tract and the factors affecting it.
- (ii) Discuss the methods used for bioassay.

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4. (A) Choose the most appropriate answer (**any three**) :

3

- (i) Pharmacodynamics involve the study of following EXCEPT _____.
 - (a) adverse effects of drugs
 - (b) absorption and metabolism of drugs
 - (c) mechanisms of drug action
- (ii) "Affinity" is a measure of _____.
 - (a) how tightly a drug binds to plasma proteins
 - (b) how tightly a drug binds to a receptor
 - (c) inhibitory potency of a drug
- (iii) If an agonist can produce maximal effects and has high efficacy it is called _____.
 - (a) partial agonist
 - (b) complete agonist
 - (c) agonist-antagonist
- (iv) _____ is a second messenger of G-protein-coupled receptor.
 - (a) IP3
 - (b) cAMP
 - (c) cGMP
- (v) _____ is a beta receptor antagonist.
 - (a) Lasix
 - (b) Losartan
 - (c) Proprenolol
- (vi) Sulphonamide affects _____ synthesis.
 - (a) PABA
 - (b) peptidoglycan
 - (c) protein

(B) Define **any one** of the following :

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- (i) Placebo
- (ii) Antagonist

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- (C) Write a note on **any one** of the following : 4
- (i) Proton pump inhibitors
 - (ii) Mechanism of action of drugs mediated by receptors
- (D) Answer **any two** of the following : 6
- (i) Discuss the mode of action of Penicillin.
 - (ii) How does a beta blocker lower blood pressure?
 - (iii) Write a brief note on adverse reactions of non-steroid anti-inflammatory drugs.
 - (iv) Discuss the action of any two drugs acting as enzyme inhibitors.
5. (A) Write a brief note on **any one** of the following : 3
- (i) RQ
 - (ii) PDCAAS
- (B) Answer **any one** of the following : 3
- (i) Justify: "Obesity can be controlled by diet".
 - (ii) Suggest how the carbohydrate intake should be modulated in conditions of
 - (i) Glucosuria and
 - (ii) *Helicobacter pylori* infection.
- (C) Briefly answer **any one** of the following : 3
- (i) Write a note on Therapeutic Index.
 - (ii) Differentiate between bioequivalence and bioavailability.
- (D) Give brief answers to **any one** : 3
- (i) Explain the mechanism by which Amlodipine elicits its effect.
 - (ii) With the aid of suitable examples describe the use of drugs that act via nonreceptor mechanism.

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(E) State True or False (any three) :

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- (i) RDA refers to Relative Dietary Allowance.
 - (ii) Fats should be avoided totally in the normal diet.
 - (ii) Bioavailability is 100% for a drug administered via topical route.
 - (iv) Omeprazole is a NSAID.
 - (v) Acetylation of the drug increases absorption of a drug.
 - (vi) Acidic drugs are absorbed in the intestine.
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