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SEAT No. _____

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SARDAR PATEL UNIVERSITY

M.Sc. IVth semester Biochemistry Examination (CBCS)

Wednesday, 20th March, 2019, 10.00 a.m. to 1.00 p.m.

Subject: PS 04 CBIC 22 Nutritional and Clinical Biochemistry

Max marks: 70

Q.1 Write the most correct options of the following multiple choice questions. (08)

- The following is the gross energy value of piece of cheese, if a piece of cheese having 40g of carbohydrate, 10g of protein and 20g of fat.
(a) 380Kcal (c) 480Kcal
(b) 380 calories (d) 480 calories
- _____ is a numerical system of measuring the degree of rise in blood sugar in response to various carbohydrates taken in diet.
(a) Glycemic Index (c) IGT
(b) Threshold value (d) Carbohydrate index
- Mc Ardle's syndrome cause muscle cramps and muscles fatigue with increased muscle glycogen. Which of the following enzyme is deficient?
(a) Muscles Hexokinase (c) Muscles Phosphorylase
(b) Glucose -6- phosphatase (d) Branching enzyme
- Which of the following biochemical complication develop before Insulin Resistance condition
(a) Desensitization of pancreatic β -cell receptor (c) Overproduction of Insulin
(b) Abnormal lipid profile (d) all of the above
- Which of the following lipoproteins has highest amount of proteins?
(a) VLDL (c) LDL
(b) IDL (d) these all have same protein level
- If liver cell has high amount of cholesterol,
(a) LDL will enter hepatocytes through apo B 100 (c) LDL will activate cholesterol anabolism
(b) LDL will enter hepatocytes through apo B 45 (d) LDL will not be taken by hepatocytes
- Which of the following effect occurs due to activation of polyol pathway flux in hyperglycaemia?
(a) increased Na^+K^+ ATPase activity (c) inactivation of protein kinase C
(b) increase in cytosolic NADPH (d) none of the above
- What will be the PER value, if intake of 28 grams of protein for 4 weeks by an experimental animal results in the gain of its body weight by 132 g?
(a) 0.2 (b) 4.7 (c) 160 (d) none, protein never increase the weight

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(P.T.O)

Q.2 Answer any seven of the following questions in brief:

(14)

1. Narrate the procedure of Glucose Tolerance Test.
2. What is the action of insulin on lipase, Acetyl CoA carboxylase, Hexokinase and Glycogen synthase?
3. What are the major microvascular diseases occurring in chronic diabetic patients?
4. What is specific dynamic action of food? Why proteins have higher SDA?
5. Give the nutritional classification of protein.
6. Write any five major effects of insulin.
7. What is impaired glucose tolerance (IGT), how is it different from NGT?
8. Why HDL is considered as good cholesterol?
9. What is BMI? Write WHO classification of body weight based on BMI.

Q3 (a) What is insulin resistance? Discuss the clinical symptoms, classification and management of diabetes mellitus in detail. (06)

(b) What is the energy value of food? How can we determine it? (06)

OR

(b) List various acute and chronic diabetic complications. Briefly describe the various possible mechanisms responsible for development of chronic diabetic complication. (06)

Q4 (a) Write nutritional classification of proteins and explain how PER is determined. (06)

(b) Explain the following terms

1. Chemical Score of Proteins
2. Biological Value (BV)
3. Digestibility Coefficient (DC)

(06)

OR

(b) What is Protein calorie malnutrition? Discuss the sign, symptoms, biochemical change and treatment of Kwashiorkor. (06)

Q5 (a) Define Obesity. Write down the biochemical mechanism of leptin hormone in regulation of body mass and development of obesity. (06)

(b) What are apolipoproteins? Describe the metabolic fate of chylomicrons and VLDL. (06)

OR

(b) What are PUFA and MUFA? Give the clinical significance of various essential fatty acids. (06)

Q6 (a) What are anti-nutrients? Write a note on naturally occurring anti-nutrients in food. (06)

(b) What is the importance of maintaining electrolytes balance? Explain the role of Na^+K^+ ATPase in maintaining electrolyte balance. (06)

OR

(b) Explain the metabolic adaptation in prolonged starvation. (06)

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