National Board of Examinations

Question Paper Name :	DNB Biochemistry Paper2
Is this Group for Examiner? :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 1 Question Type : SUBJECTIVE

a) Draw a schematic diagram of Fo-F1 particle of mitochondria and label the proteins forming different parts of it. Discuss the role of these proteins in ATP biosynthesis. [7]

b) Enumerate three ionophores inhibiting ATP synthesis along with biochemical basis of this inhibition. [3]

Question Number : 2 Question Type : SUBJECTIVE

a) Write **three** biochemical reactions generating NADPH and mention **three** functions of NADPH in human body. [6]

b) What is the mechanism of hemolysis in glucose-6 phosphate dehydrogenase (G-6 P D) and Pyruvate kinase deficiency? [4]

Question Number : 3 Question Type : SUBJECTIVE

a) "Adipose tissue is metabolically active." Justify the statement. [4]

b) What is the difference in biochemical reactions and functions between white adipose tissue (WAT) and brown adipose tissue? [3]

c) Discuss the role of adipokines in metabolic syndrome. [3]

Question Number : 4 Question Type : SUBJECTIVE

a) Explain with suitable examples the role of vitamins as anti-oxidants. [5]

b) Enumerate the various types of free radicals which can initiate oxidative damage. What is the role of iron in the oxidant-antioxidant homeostasis? [2+3]

Question Number : 5 Question Type : SUBJECTIVE

What is the biochemical basis of:

a) Arsenic poisoning. [2]

b) Anemia in workers involved in lead industries. [3]

c) Hyperuricemia in alcoholics. [3]

d) Non-ketotic hypoglycemia in carnitine deficiency. [2]

Question Number : 6 Question Type : SUBJECTIVE

a) Explain the role of Hepcidin as a regulator of iron homeostasis. [2]

b) What is the mechanism of genetic control of iron homeostasis? [5]

c) Enumerate the biochemical parameters used to assess iron deficiency anaemia. Write about the interpretations of the parameters. [3]

Question Number : 7 Question Type : SUBJECTIVE

a) Describe in detail the various metabolic adaptations during prolonged fasting. [6]

b) What are the sources of energy for the brain and red blood cells during the different phases of fasting? [4]

Question Number : 8 Question Type : SUBJECTIVE

Explain why:

a) Chronic alcoholism leads to fatty liver. [3]

b) High homocysteine levels increase the risk of atherosclerosis. [3]

c) Deficiency of vitamin K leads to clotting defect. [2]

d) Ammonia is toxic to brain tissue. [2]

Question Number : 9 Question Type : SUBJECTIVE

a) Explain the significance of ω-6 fatty acids and ω-3 fatty acids in health and disease. [5]

b) What is the significance of glycemic index? [2]

c) How does high fibre diet reduce the risk of coronary heart disease? [3]

Question Number : 10 Question Type : SUBJECTIVE

a) Enumerate the classes and functions of different G-proteins. [4]

b) Explain the mechanism of action of thyroxine. How is primary and secondary hypothyroidism diagnosed by using the thyroid function test parameters? [4+2]