

National Board of Examinations

Question Paper Name : DNB Biochemistry Paper2
Subject Name : DNB Biochemistry Paper2
Duration : 180
Total Marks : 100
Display Marks: No

Maximum Instruction Time : 0

Question Number : 1 Question Id : 32718733344 Consider As Subjective : Yes

Please write your answers in the answer booklet within the allotted pages as follows:-

Question Number	Answer to be attempted within	Question Number	Answer to be attempted within
Q. 1	Page 1-5	Q. 6	Page 26-30
Q. 2	Page 6-10	Q. 7	Page 31-35
Q. 3	Page 11-15	Q. 8	Page 36-40
Q. 4	Page 16-20	Q. 9	Page 41-45
Q. 5	Page 21-25	Q. 10	Page 46-50

1. a) Describe how electron transport chains works, mentioning the role of Q cycle. [6]
b) How does extra-mitochondrial NADH enter the mitochondrial matrix? [4]

Question Number : 2 Question Id : 32718733345 Consider As Subjective : Yes

- a) Describe with suitable diagram(s) how different factors affect oxygen dissociation curve of hemoglobin. [6]
b) Explain how oxygen dissociation curves for myoglobin and hemoglobin suits their physiological role. [4]

Question Number : 3 Question Id : 32718733346 Consider As Subjective : Yes

- a) Discuss the process of biosynthesis of selenocysteine and its incorporation in proteins. [4]
b) List three biomedical importance of selenocysteine. [3]
c) How does the biosynthesis and incorporation of hydroxyproline and hydroxylysine in protein differ from those of selenocysteine? [3]

Question Number : 4 Question Id : 32718733347 Consider As Subjective : Yes

- a) Discuss how heme is catabolised to bilirubin. [3]
b) Enumerate various causes of unconjugated hyper-bilirubinemia. [3]
c) With the help of a table, mention how the liver function test results are used to differentiate between normal population and patients with hyper-bilirubinemia. [4]

Question Number : 5 Question Id : 32718733348 Consider As Subjective : Yes

- a) Discuss the damage caused to DNA, lipids and proteins by free radicals. [6]
- b) Mention four diseases associated with oxidative stress and write the role of free radicals in pathogenesis of these diseases. [4]

Question Number : 6 Question Id : 32718733349 Consider As Subjective : Yes

Discuss the principal function(s) and deficiency disease(s) associated with inadequate intake of:

- a) Vitamin A. [2.5]
- b) Vitamin K. [2.5]
- c) Vitamin B₁. [2.5]
- d) Vitamin B₂. [2.5]

Question Number : 7 Question Id : 32718733350 Consider As Subjective : Yes

- a) Illustrate the structure of a lipoprotein particle with the help of a labelled diagram. [3]
- b) List the lipoproteins present in human blood and mention the major lipid(s) carried by them. [4]
- c) List the apo-lipoproteins and mention their functions. [3]

Question Number : 8 Question Id : 32718733351 Consider As Subjective : Yes

Describe biochemical defect and management strategies in following inborn errors of metabolism:

- a) Maple Syrup Urine Disease (MSUD). [2.5]
- b) HHH syndrome. [2.5]
- c) Classical galactosemia. [2.5]
- d) Von Gierke disease. [2.5]

Question Number : 9 Question Id : 32718733352 Consider As Subjective : Yes

- a) Write in detail about one carbon metabolism in human body. [5]
- b) Discuss the biochemical basis of ammonia toxicity in hepatic failure. How do lactulose and neomycin reduce ammonia level in this condition? [5]

Question Number : 10 Question Id : 32718733353 Consider As Subjective : Yes

- a) Role of pentose phosphate pathway. [2.5]
- b) Importance of brown adipose tissue. [2.5]
- c) Insulin signalling pathway. [2.5]
- d) Glucose transporters. [2.5]