

National Board of Examinations

Question Paper Name :	DNB Biochemistry Paper2
Subject Name :	DNB Biochemistry Paper2
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Actual Answer Key :	No

DNB Biochemistry Paper2

Group Number :	1
Group Id :	3271871070
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	100
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

DNB Biochemistry Paper2

Section Id :	3271871073
Section Number :	1

Section type :	Offline
Mandatory or Optional :	Mandatory
Number of Questions to be attempted :	10
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	3271871077
Question Shuffling Allowed :	No

Question Number : 1 Question Id : 3271879752 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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) How is thermo dynamics related to nutrition and obesity? [2]
- b) Define membrane potential and explain its role in ATP synthesis and thermogenesis. [3]
- c) Describe the effects of inhibitors such as rotenone, antimycin A, cyanide, oligomycin and carbon monoxide on oxygen uptake by mitochondria. [5]

Question Number : 2 Question Id : 3271879753 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Outline short-term and long-term regulation of fatty acid synthesis. [3]
- b) Discuss the endocrine function of adipose tissue. [3]
- c) How is LDL receptor regulated by the intracellular cholesterol concentration? [4]

Question Number : 3 Question Id : 3271879754 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Describe the reverse cholesterol transport and its links with other pathways of lipoprotein metabolism. [4]
- b) Explain the molecular basis of homocystinuria, Gilbert Syndrome and cystic fibrosis. [6]

Question Number : 4 Question Id : 3271879755 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) The origin of drug induced hemolytic anemia in person with G6PD deficiency. [4]
- b) The Menkes and Wilson disease in relation to copper metabolism and their clinical manifestations. [6]

Question Number : 5 Question Id : 3271879756 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Describe the complementary roles of glycogenolysis and gluconeogenesis in maintenance of blood glucose concentration. [5]
- b) Describe the molecular basis of different types of galactosemia. [5]

Question Number : 6 Question Id : 3271879757 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Describe the biochemical basis and the therapeutic rationale for treatment of phenylketonuria and maple syrup urine disease. [5]
- b) Outline the sequence of reactions in the urea cycle and trace the flow of nitrogen from amino acids into and out of the cycle. [5]

Question Number : 7 Question Id : 3271879758 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

- a) Describe the consequences of undernutrition - marasmus, cachexia and Kwashiorkor. [5]
- b) Describe the role of AMPK-activated kinase in maintaining cellular energy balance. [5]

Question Number : 8 Question Id : 3271879759 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Explain why vitamin E is the major lipid soluble antioxidant in cell membranes and plasma membranes. [4]
- b) Describe the role of Vitamin K in synthesis of bone and other calcium-binding proteins. [4]
- c) How does vitamin B12 deficiency causes pernicious anemia? [2]

Question Number : 9 Question Id : 3271879760 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Describe the mechanisms of regulating synthesis and action of glucocorticoids. [5]
- b) Describe the consequences of deficiencies and excesses of hormones regulated by the hypothalmo pituitary axis. [5]

Question Number : 10 Question Id : 3271879761 Question Type : SUBJECTIVE Consider As Subjective : Yes Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

- a) Describe G-protein coupled receptor. [4]
- b) Discuss the generation of second messengers such as cyclic AMP, inositol triphosphate (IP3), diacylglycerol (DAGH) and Ca^{2+} and explain how they activate key protein kinases. [6]