2/1562

1020E329

Candidate's Seat No

First M.B.B.S. (New Course) Examination
Bio-Chemistry
Paper-II

Date : 24-10-2020, Saturday] **[Max. Marks : 100**
[Time : 3 Hours

Instructions : (1) Answer to the point.
(2) Figure to the right indicates marks.
(3) Draw diagrams wherever necessary.
(4) Write legibly.
(5) Use separate answer books for each section.

SECTION – I

Q.1 WRITE THE FOLLOWING STRUCTURED LONG QUESTION: (Any 01 out of 02) **1x10 =10**

A. Describe the process of Eukaryotic Transcription and how it differs from prokaryotic Transcription. Name various types of RNAs and type of RNA polymerase required for each. Describe post transcriptional modifications of primary transcript to form different types of RNAs. (5+1+4=10)

B. What are the common causes of DNA damage? Describe various types of DNA Repair mechanisms. Write briefly about disorders or malignancies associated with defective DNA repair mechanisms. (2+5+3=10)

Q.2 A. WRITE THE FOLLOWING CASE BASED SCENARIO /APPLIED SHORT NOTES: (Any 02 out of 03) **2 x 6 = 12**

a) Read the following case history & answer the questions:
A 3 year old fair boy was brought to the hospital with complaints of delayed developmental mile stones, mental retardation, seizures & eczema. His skin, eyes & hair were light colored. Blood phenyalanine level was 30 mg/dl (normal 1-2 mg/dl). Guthrie bacterial inhibition assay showed bacterial growth in presence of child's blood & Ferric Chloride test of urine showed blue green color.

i. What is probable diagnosis and possible cause of this disorder?
ii. What is cause of fair skin and light color hair & eyes?
iii. Name the biologically important substances formed from tyrosine.
iv. Why Tyrosine becomes an essential amino acid in such cases?
v. What is the cause of mousy odour in this patient?
vi. What special dietary advice should be given for such patients?

b) What is Gout? Describe biochemical defects underlying a case of Gout and its primary and secondary causes.

c) Briefly describe the principle and technique of Gene therapy, its success so far and future prospects.

Q.2 B WRITE SHORT NOTES: (Any 03 out of 04) **3 x 6 = 18**

a) What is Recombinant DNA technology? Name the various enzymes used in this techniques & their uses.
b) Free radicals generation in body & their beneficial action in body.
c) Describe effect of insulin on various metabolic pathways of carbohydrates, proteins & lipids metabolism.
d) Write salient features of genetic code. Explain why majority of mutations have no phenotypic effect.

Q.3 ANSWER IN 2-3 SENTENCES ONLY: (Any 05 out of 06) **5 x 2 = 10**

a) Replication is semiconservative.
b) Role of p53 Tumor suppressor gene in apoptosis.
c) Role of miRNA & Si RNA in regulation of gene expression.
d) Telomerase inhibitors are used as anticancer drugs.
e) Antibiotic Tetracycline has an effect on bacterial translation but not on human cells.
f) Growing children and pregnant females have positive Nitrogen balance.

P.T.O.

SECTION-II

Q.4 WRITE THE FOLLOWING STRUCTURED LONG QUESTION: (Any 01 out of 02) **1x 10= 10**

A. What is Transdeamination and how ammonia is transported without increasing its level in blood? Explain the pathway of its final detoxification in liver. (5+5=10)

B. Name the Vitamins which have a role in hematopoisis. Give their structural characteristics, biochemical roles, important dietary sources, deficiency features & their clinical significance. (2+8=10)

Q.5 A WRITE SHORT NOTES: (Any 02 out of 03) **2 x 6 =12**

a) Define Basal Metabolic Rote & explain the factors affecting it.
b) Discuss Iron homeostasis and biochemical basis of hemosiderosis.
c) Chronic complications of Diabetes Mellitus and Biochemical basis of their development.(Polyol Pathway & Glycation of proteins)

Q.5 B WRITE SHORT NOTES ON: (Any 03 out of 04) **3 x 6 = 18**

a) Pathways & mechanism of action of hormones acting through second messenger.
b) Various transport proteins present in plasma, molecules they transport & their clinical significance.
c) Neurotransmitters synthesized from amino acid
d) One Carbon group generation and utilization

Q.6 ANSWER IN 2-3 SENTENCES ONLY: (Any 05 out of 06) **5 x 2 = 10**

a) Defective folding of protein can lead to disease state even if primary structure is normal.
b) Patient of Chronic Kidney Disease develops Osteodystrophy.
c) Explain why proteins have no electrophoretic mobility at their Isoelectric pH
d) Differentiate between Carbamoyl phosphate synthetase -I & Carbamoyl phosphate synthaetase-II
e) Vitamin K injection is given to new born baby.
f) Zn containing enzymes & its role.

ADH, CA,