

The West Bengal University of Health Sciences
MBBS 1st Professional Examination (New Regulation),
October -November 2021

Subject: Biochemistry
 Paper : II

Full Marks : 100
 Time : 3 hours

Attempt all questions. The figures in the margin indicate full marks.

1. A) Classify chemical carcinogens. Mention some differences between Oncogenes & Tumor suppressor genes. Enumerate the mechanisms by which oncogenes are activated from proto oncogenes. 2+3+10

- B) Describe the chemistry, sources, daily requirement, biochemical functions and deficiency manifestations of Vitamin -B12. 2+3+2+4+4

2. a) What is food? Discuss in brief nutritional role of different macro and micronutrients. 2+8

- b) What is an operon ? Describe how prokaryotic gene expression is regulated with the help of a suitable operon model. 2+8

- c) What is collagen ? How collagen is synthesized ? Enumerate the diseases caused by defective collagen synthesis. 1+5+4

3. Write a short notes on the following: 2x5
 - a) Major histocompatibility complex.
 - b) Glycemic index.

4. Explain the following statements: 5x4
 - a) Multiple codons exist for a single amino acid.
 - b) DNA replication is semiconservative in nature.
 - c) Generalized edema occurs in children suffering from kwashiorkor while wasting is found in marasmus.
 - d) Chloramphenicol can inhibit protein synthesis in bacteria but not in human.
 - e) Plasmids are useful vectors for DNA cloning.

5. Choose the correct option for each of the following: 10x1
 - i) Polymerase chain reaction technique requires all except-
 - a) Target sequence of DNA
 - b) Primer
 - c) dNTP's
 - d) Restriction endonuclease.

 - ii) Folate deficiency results in
 - a) Hypochromic anaemia
 - b) Sideroblastic anaemia
 - c) Megaloblastic anaemia
 - d) Haemolytic anaemia.

P.T.O

- iii) Decreased rice intake is associated with the deficiency of-
- Thiamine
 - Riboflavin
 - Folic acid.
 - Pantothenate.
- iv) Following are the applications of southern blotting except:
- Diagnostics
 - Forensics
 - Therapeutics
 - Gene mapping
- v) The cell cycle is regulated by:
- Availability of nucleotides.
 - Presence of inducer in cells.
 - Cyclin dependent Kinase.
 - DNA dependent Kinase.
- vi) Proto-oncogene is activated by all the following mechanisms except:
- Gene amplification
 - Promoter insertion
 - RNA editing
 - Enhancer insertion
- vii) All of the following are tumour markers except:
- A- Fetoprotein
 - β -hcg
 - PSA
 - SGPT
- viii) Commonest DNA present in living human cell:
- A FORM
 - B FORM
 - Z FORM
 - DELTA FORM
- ix) Following foods have high Glycemic index except:
- Glucose
 - Starch
 - Potato
 - Sucrose
- x) Antibody diversity is caused by all except:
- VDJ Gene rearrangement
 - Somatic Hypermutation
 - Inprecise joining of gene segments
 - RNA editing