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SS/MBBS-I/BIOCHEM-II /08-24

2024

(August)

BIOCHEMISTRY

Paper-II

Full Marks: 90

Time: 2 hours 50 minutes

The figures in the margin indicate

full marks for the questions

Answer all questions

1. Define cancer and enumerate the causes of cancer. Discuss alteration in cell cycle regulation in cancer with examples. Name the tumour marker for ovarian and breast cancer. [2 + 5 + 6 + 2 = 15]

2. What are the proximate principles of a diet? How do you calculate a balanced diet? Prepare a balanced diet chart for a normal young adult male of sedentary habits. [5 + 6 + 4 = 15]

3. A 52-year-old alcoholic male presented with severe pain in his wrists and right big toe, which was accompanied by inflammation and erythema of the joints. On investigation, his serum uric acid level was > 10.5 mg/dl.

[1+4+2+3=10]

(a) What is the probable diagnosis?

(b) Enumerate the primary and secondary causes for the condition.

(c) What is the relationship between alcohol and the symptoms in this case?

(d) What are the treatment modalities in this case?

4. Why should a good physician be a lifelong learner?

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5. Write short notes on the following: [5x7=35]

- (a) Cell-mediated immunity and its components
- (b) Haemoglobin S disease and its complications
- (c) Thyroid function tests and their significance
- (d) Molecular tools employed in recombinant DNA technology and its clinical application
- e) Role of transcriptional regulation of gene expression
- f) Role of telomerase in health and disease
- g) Homeostasis of blood calcium level

6. Justify the following statements: [2x5=10]

- (a) Cyanide is an inhibitor of ETC.
- (b) Photometric principle is used in analyzers of a clinical biochemistry lab.
- (c) Biotransformation of toxic xenobiotics serves as an important defense mechanism.
- (d) Bicarbonate is called the alkali reserve of plasma.
- (e) Folate is trapped when vitamin B₁₂ is deficient.

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