

Sl. No. of Ques. Paper : 1317

F-7

Unique Paper Code : 2491503

Name of Paper : Molecular basis of complex human diseases

Name of Course : B.Sc (H) Biochemistry

Semester : V

Duration : 3 hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt five questions in all. Question No. 1 is compulsory.

Subparts of the questions should be attempted together.

1. (A) Define the following:

- (i) Orexins
- (ii) Bitot spots
- (iii) Chilosis
- (iv) Oncogenes
- (v) Metastasis
- (vi) Angina Pectoris.

(B) Comment on the following statements:

- (i) Inborn errors in metabolism like PKU are examples of monogenic disorders.
- (ii) Thrombo embolism leads to heart attack.
- (iii) Oedema is one symptom that distinguishes between Marasmus and Kwashiorkar.
- (iv) Cystic fibrosis leads to insufficient hydration of lungs. 9,10

2. (A) Expand and elaborate the following:

- (i) CAD
- (ii) BMI
- (iii) VEGF
- (iv) PEM
- (v) NPY

(B) Serum Homocysteine can be a diagnostic test for multiple pathological conditions. Elaborate. 10,4

3. Differentiate between the following:

- (i) Android obesity and Gynoid obesity
- (ii) Sickle cell anemia and Thalassemia
- (iii) Wet and Dry Beri Beri
- (iv) NIDDM and IDDM
- (v) Anorexia nervosa and Bulimia.

2, 3×4=14

4. (A) Explain the biochemical basis for the following symptoms:

- (i) Bowlegs in rickets
- (ii) Anemia in Copper deficiency
- (iii) Bleeding gums in Scurvy
- (iv) What is Metabolic Syndrome? Explain the cardinal features that define the condition.

(B) Elaborate the steps involved in the regulation of apoferritin and transferrin synthesis.

6,4,4

5. (A) Explain the mechanism of action of the following drugs:

- (i) Sulfonylurea
- (ii) Warfarin
- (iii) Methotrexate.
- (iv) Nitroglycerine
- (v) Statins.

(B) What are the *three* stages of development of an atherosclerotic plaque? Elaborate.

10,4

6. Comment on the following statements:

- (i) Hemochromatosis has a genetic basis.
- (ii) Mutations in growth factor signalling pathways can lead to cancer.
- (iii) Expansion of CAG repeats is the underlying cause of Huntington corea.
- (iv) Acetyl choline esterase inhibitors are used to treat Alzheimers patients.

- (v) Excess of Vitamin D leads to bone resorption.
- (vi) Megaloblastic anemia is caused by folate deficiency.
- (vii) Incretins regulate insulin secretion.

7×2=14

7. Elaborate the following:

- (i) The 3 Ds of Pellagra
- (ii) The mechanisms by which p53 acts to prevent a cell from becoming malignant
- (iii) The aetiology of Maple syrup urine disease
- (iv) The neuropathological changes for the diagnosis of Alzheimer's disease. 3.5×4=14

8. Write short notes on the following:

- (i) Angiogenesis in cancer tissues
- (ii) Familial Hypercholesterolemia
- (iii) Prions
- (iv) Heart attack. 3.5×4=14