AF-136

April-2023

B.Sc., Sem.-VI

CC-311 : Biotechnology

(Metabolism and Endocrinology)

Time : 2½ Hours]   **[Max. Marks : 70**

1. Discuss Bioenergetics of citric acid cycle along with its check points and significance.   **14**

   OR

   (A) Differentiate between glycolysis and gluconeogenesis.   **7**

   (B) Write a detailed note on HMP Shunt.   **7**

2. Discuss the biodegradation of amino acids through deamination and transamination with suitable examples.   **14**

   OR

   (A) Describe the detoxification of ammonia by urea cycle.   **7**

   (B) Explain de novo synthesis of pyrimidine nucleotides and discuss its regulation.   **7**

3. State the properties, functions and classification of Hormones.   **14**

   OR

   (A) Describe various mechanism of hormone action in detail.   **7**

   (B) Write a note on mechanism of action of G-protein coupled receptor.   **7**

4. Discuss the biosynthesis, secretion, transport, regulation and biological action of pituitary gland.   **14**

   OR

   (A) Write a note on biosynthesis and secretion of T_3 and T_4.   **7**

   (B) Explain the regulation and biological action of two antagonist hormones release from pancreas.   **7**

5. Short questions : (Any **7**) **14**

    (1) Differentiate between amphibolic and anaplerotic reactions.

    (2) Explain how glycolysis is important.

    (3) Discuss net gain of ATP during β-oxidation of saturated fatty acids from different steps.

    (4) Explain pyruvate dehydrogenase complex.

    (5) What is decarboxylation with its significance ?

    (6) What is the co-factor for the de novo synthesis of purine metabolism ?

    (7) Intermediates of which metabolic pathway have not been used in the synthesis of amino acids ?

    (8) What is paracrine gland ? Draw diagrammatic presentation with suitable example.

    (9) Write two amine hormone and its function.

    (10) Describe the structure which connects hypothalamus to pituitary gland.

    (11) Which endocrine gland stimulates the secretion of prolactin hormone and write its significance.

    (12) Define secondary messenger and give one example.

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