

- What is high energy <sup>n</sup> compound? Why ATP is a high energy compound?
- b) Describe the difference between heterotrophs and autotrophs.
  - c) What is metabolism and metabolites? Write down basic characteristics of metabolic pathway.
  - d) What is GLUT? Write down different types of GLUT with their location and function.
  - e) Why glucose phosphorylation is very important for carbohydrate metabolism?
  - f) Justify that fluoride is an inhibitor of glycolysis. Describe the mechanism that regulates phosphofructokinase activity.
  - g) Write down the mechanism of acetyl-CoA formation by pyruvate dehydrogenase multi-enzyme complex.
  - h) TCA cycle is the metabolic hub. Explain.
  - i) Outline the reaction of pentose phosphate pathway. Why pentose phosphate pathway is important of red blood cells?
  - j) Write short notes on following.
    - (i) Regulation of gluconeogenesis.
    - (ii) Glycogenesis.
    - (iii) Glycogenolysis.

## Part - B

- 1) Discuss the role of biotin in gluconeogenesis.
- 2) Briefly describe the multienzyme complex which is involved in the electron carriers of the respiratory chain.
- 3) Explain with examples how uncouplers and inhibitors act on oxidative phosphorylation.
- 4) Describe the biochemical causes of the following diseases:
  - i) Hemolytic anemia
  - ii) Hypoglycemia
  - iii) Diabetes mellitus.
- 5) Describe the pathways involved in the biosynthesis of palmitic acid.
- 6) Briefly describe the regulation of fatty acid oxidation and ketone body formation.
- 7) Write down the biological function of TAG.
- 8) Show the activation of fatty acid before being oxidized.
- 9) What are ketone bodies? Write down the formation of ketone bodies from acetyl-CoA with reactions.
- 10) Describe the steps involved in cholesterol biosynthesis.
- 11) What is the mechanism of steroid hormone action?