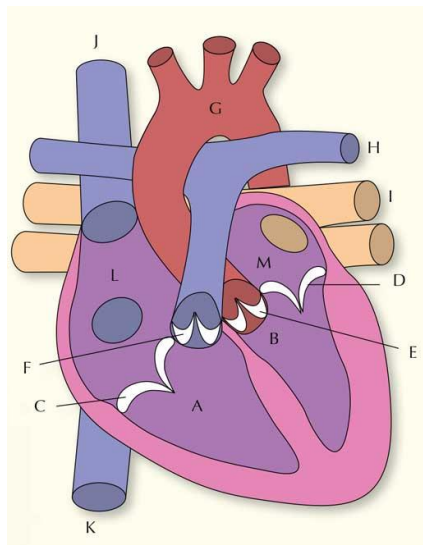


## Winter Vacation work for XI Biology

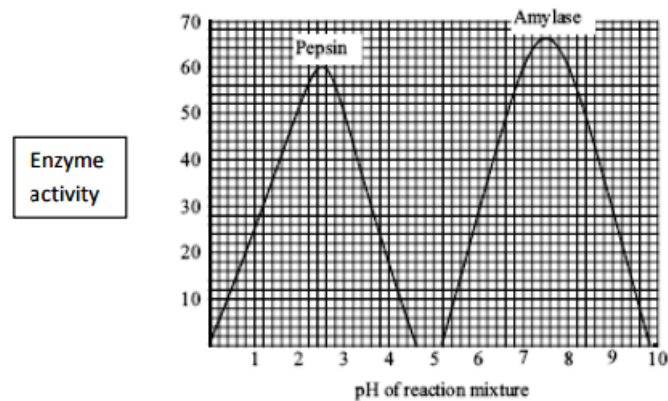
1. Differentiate between action spectrum and absorption spectrum with respect to photosynthesis.
2. State the cell theory as understood today
3. Based on the position of centromere, the chromosomes can be classified into four types. What are they?
4. How are secondary metabolites useful to human welfare? Give two examples of it.
5. What do you understand by alternation of generation? Explain with any one pattern of plant life cycle?
6. Draw a well labelled diagram of a sectional view of chloroplast and label the sites for light reactions and dark reactions.
7. Mention the criteria for essentiality of an element. Give one example of an essential element.
8. Differentiate between skeletal muscles, smooth muscle, and cardiac muscle (at least two points in each)
9. Explain the structure of plasma membrane as proposed by Singer and Nicolson (1972) with diagram.
10. Name the technique of growing plants in soil free, nutrient solution? What is the basic purpose of the experiment?
11. Name one sulphur containing amino acids.
12. State the role of  $Mg^{2+}$  in plants.
13. Name one free living nitrogen fixing cyanobacteria.
14. What is function of gall bladder?
15. What is role of  $NADH^+$  in respiration?
16. Which is/are functional structure(s) of protein?
17. Give the illustrated account of transport of oxygen in human body.
18. What are types of growth? Explain any one with graphical depiction.
19. Describe the cardiac cycle and mark the name of two valves and two veins of given figure.



20. How does cytokinesis in plant cell differ from that in animal cell?
21. Give the diagrammatic account of urine formation including glomerular filtration.
22. What is photorespiration? Explain its role in plant health.
23. Define the process of nitrification, denitrification and ammonification with example.
24. What is facilitated diffusion? Explain the different phenomenon of facilitated diffusion.
25. What is guttation? How this phenomenon is controlled by root pressure?
26. Why digestion of lipid is not performed in stomach?
27. What is difference between glycolysis of aerobes and anaerobes?
28. Where are peptide and glycosidic bonds formed?
29. What are the mesosomes? What are their functions?
30. From where insulin and glucagon are secreted and what are their relations?
31. What is apical dominance?
32. Give main effects of Gibberellins.
33. Which stage of cell cycle contains duplicated amount of DNA? Elaborate the phases of cell cycle.
34. Give the diagrammatic account of nephron indicating counter current mechanism.
35. What are the basic difference between areolar tissues and ligaments.
36. What is Z-Scheme of phosphorylation and how the water is splitted?
37. Elaborate the different types of biological N<sub>2</sub> fixation with examples.
38. Describe the role of nitrogenase and leg-haemoglobin in N<sub>2</sub> fixation.
39. "All elements that are present in plant need not be essential to its survival"  
Comment.
40. Why is purification of water and nutrient salts so important in studies involving mineral nutrition using hydroponics?
41. Describe the effect of temperature and pH on enzyme activity.
42. What is competitive inhibition? Explain with example.
43. Explain the phenomenon of water absorption in plants with symplastic and apoplastic pathway.
44. Elaborate the mechanism of ascent of sap in plants.
45. The reducing and non-reducing sugars are different in their structures. Why?
46. Why are the starch, glycogen and cellulose are different although they are made up of same monomer?
47. Illustrate the different structural forms of sugars on the basis of their functional forms.
48. Illustrate the different structural forms of sugars on the basis of their chain forms.
49. How many types of glycosidic bonds are present? How are they formed?
50. Why starch is stained blue by iodine but not the glycogen even though both have same bonding and monomeric unit?

51. How ribose and deoxy ribose sugars are different? Are their structure changes provide any stability to the ring structure.
52. How the chemical study of any organism may be performed?
53. How are prosthetic groups differ from co-factor?
54. Discuss the role of nucleolus in metabolically active cell.
55. What is Grams staining? What is its role in classification?
56. Experiments were carried out to investigate the effect of different pH values on enzyme activities. (Time and temperature was kept constant). Observe the given graph and answer:-

- a. What interpretation can you draw from the graph?
- b. What happens to the pepsin reaction between pH 4 and 5? Why?



57. Explain the structure of cilia and flagella.
58. Nucleic acids exhibit secondary structure. Describe through Watson & Crick Model.
59. Why do doctor recommended vegetable oil with PUFA for person suffering from heart disease?
60. Phospholipid form a thin layer on surface of aqueous medium. Explain.