

18. Draw the structure of Human sperm.
19. Identify whether the statements are True or false. Correct the false statement
 - i) Each gamete has only one allele of a gene.
 - ii) Down's syndrome is the genetic condition with 45 chromosomes
20. What are Okazaki fragments?
21. Fill in the blanks
 - i) ----- involves evaporative loss of water from aerial parts
 - ii) in the Islets of Langerhan's beta cells secrete-----.
22. The work done moving a charge of 20 C across two points in a circuit is 200J. What is the potential difference between the points.

PART - III**7x4=28****Note: Answer any seven questions: (Q.No.32 is compulsory)**

23. a) Write any three differences between series and parallel circuit.
b) Write the unit for resistance.
24. Derive $F = ma$
25. Name the defects of human eye. How are they rectified?
26. The molecular formula of an alcohol is $C_4H_{10}O$. The Locant number of its -OH group is 2
 - i) Draw its structural formula
 - ii) Give its IUPAC name
 - iii) Is it saturated or unsaturated?
27. Explain the factors influencing the rate of reaction.
28. Describe and name three stages of cellular respiration that aerobic organisms use to obtain energy from glucose.
29. Why are family planning methods not adopted by all the people of our country?
30. Natural selection is a driving force for evolution - How?
31. Write your suggestions on rehabilitation for alcoholics.
32. a) Calculate the gram molar mass of CO_2
b) Calculate the number of moles in 1.51×10^{23} molecules of NH_4Cl .

PART IV**3 x 7 = 21****Note: 1. Answer all the questions:****2. Each question carries seven marks.****3. Draw diagrams wherever necessary.**

33. a) State and prove the law of conservation of linear momentum.
b) List any two merits of LED bulbs.
OR
a) Explain the construction and working of a compound microscope.
b) Cell phone towers should be placed far away from the residential area - why?
34. a) How is iron extracted using Blast Furnace?
OR
a) What is chemical equilibrium?
b) Mention its characteristics?
c) Write the molecular formula for the following compounds?
i) Butanol ii) Ethanol iii) Pentanone iv) Methanoic acid
35. a) Define Ethnobotany and write its importance.
b) How will you determine the age of fossils?
OR
a) What precautions to be taken for preventing Heart diseases?
b) Why is the Government imposing ban on the use of polythene bags and plastics? Suggest alternatives. How is this ban likely to improve the environment?
