

C. Polystyrene	iii. Coupling agent
D. Benzhydryl moieties	iv. Resin

	A	B	C	D
a)	ii	iv	i	iii
b)	ii	iii	iv	i
c)	iii	iv	i	ii
d)	i	iii	iv	ii

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

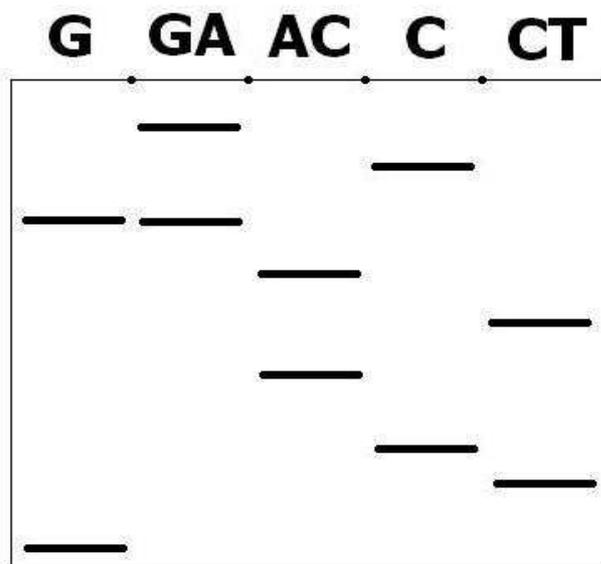
11. Calculate the pI of an amino acid under the given conditions:
pK₁ of amino group = 12.6; pK₂ of carboxyl group = 2.6 and pK_R = 3.5
Whether the amino acid is acidic or basic or neutral? CO1 [K₄]
12. Define the iodine number and quote its significance. CO1 [K₂]
13. How a dideoxynucleotide can terminate the polymerization process in the oligonucleotide synthesis? CO2 [K₂]
14. List few applications of flavonoid. CO2 [K₂]
15. Observe the given two different protein engineering designs executed for the enzyme subtilisin:
a) Replacement of Met 22 with Cys 22
b) Replacement of Met 22 with Ala 22
Which of the above mentioned design can improve the stability of the enzyme to be applied in the detergent industry? Why? CO4 [K₅]
16. Name few enzymes and whole cells that are adopted for the reduction of aldehyde and ketone molecules. CO3 [K₁]
17. How a cyclodextrin molecule can carry and deliver the hydrophobic moieties to the tissues? CO3 [K₄]
18. What is a polydentate ligand? CO5 [K₂]
19. Explain geometric isomerism in coordinate compounds with a biological example. CO5 [K₂]
20. Explain the interaction of chymotrypsin inhibitor with chymotrypsin. CO1 [K₂]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. Analyze the given below autoradiogram of the DNA finger prints performed according to the chemical method (Maxam-Gilbert). Predict the oligonucleotide sequence and explain the working mechanism with suitable steps.

CO2 [K₄]



22. Analyze and explain the mechanism of action of chymotrypsin stepwise along with appropriate structures.

CO4 [K₄]

23. Discuss in brief the mechanism of action of S_N2 reaction with a suitable example.

CO1 [K₂]

24. Describe in brief the *in vitro* synthesis of quercetin and flavone with appropriate reaction steps.

CO3 [K₂]

25. (i) Elaborate the role of iron in hemoglobin and cytochromes with suitable illustrations. (7)

CO5 [K₄]

(ii) Explain the importance of magnesium in the function of chlorophyll. (7)

26. Explain in detail the solid phase peptide synthesis (SPPS) of peptides with correct reaction steps, write a note on its advantages over solution phase synthesis. (10 +4)

CO2 [K₂]
