



GENERAL INSTRUCTIONS TO THE CANDIDATES

1. Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level (K₁ to K₆)
2. Candidates are strictly instructed not to write anything in the question paper other than their roll number.
3. Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/ Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
4. Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
5. Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

B.TECH DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2014)

Second Semester

BIOTECHNOLOGY

U14BTT201: Biomolecules and Genetics

Time: Three Hours

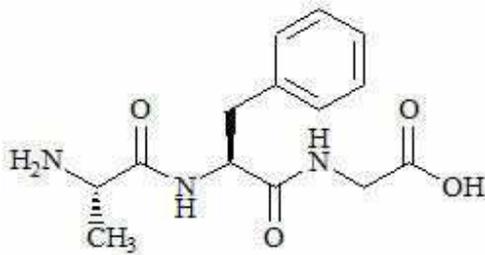
Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Assertion (A): B complex vitamins are considered to support the metabolic and physiological process for the growth and development of an organism. [K₃]
Reason (R): Vitamin act as coenzymes for many metabolic processes.
 - a) Both (A) and (R) are true and (R) is the correct explanation of (A)
 - b) Both (A) and (R) are false
 - c) (A) is false, but (R) is true
 - d) Both (A) and (R) are true, but (R) is not the correct explanation of (A)

2. Identify the correct name for the following peptide. [K₃)



- a) L-alanyl-L-phenylalanyl-glycine b) L-glycyl-L-phenylalanyl-L-alanine
c) L-phenylalanyl-L-alanyl-glycine d) L-alanyl-glycyl-L-phenylalanine
3. Give the uses of polysaccharides Starch, Cellulose and Glycogen in the right order: [K₄)
- a) Storage , structure, Storage b) Structure , storage, structure
c) Storage , storage, structure d) Structure, storage, storage
4. Identify the molecular formula of the even chain fatty acid(s) provided below: [K₂)
- 1) CH₃(CH₂)₅COOH; 2) CH₃(CH₂)₉COOH; 3) CH₃(CH₂)₁₁COOH; 4) CH₃(CH₂)₁₈COOH
- a) 4 only b) 3 only
c) 1 & 3 d) 2 & 4
5. Select the correct priority of the macromolecules that generate energy in living system: [K₄)
- a) Carbohydrate → Proteins → Fatty acids b) Fatty acids → Carbohydrate → Proteins →
→ Nucleic acids Nucleic acids
c) Proteins → Carbohydrate → Fatty acids d) Carbohydrate → Fatty acids → Proteins →
→ Nucleic acids Nucleic acids
6. Which of the following are water soluble vitamins? [K₂)
- a) Vitamin A b) Vitamin E & K
c) Vitamin B & C d) Vitamin D
7. Why do water soluble vitamins have to be taken in the diet more frequently than fat soluble vitamins? [K₃)
- a) They are metabolized faster than the fat soluble vitamins b) There are no extensive stores as any excess taken in the diet is excreted
c) Only small amounts are present in foodstuffs d) They are destroyed by gastrointestinal microbial flora

17. Distinguish backcross and testcross. [K₄]
18. Define law of independent assortment in Mendelian genetics. [K₂]
19. Why is DNA stable in alkali than RNA?. [K₄]
20. State the functions of histones in eukaryotic chromosomes. [K₃]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. i) Describe the classification of amino acids with suitable examples. (10) [K₃]
ii) Deduce physiological functions of vitamin C and vitamin D. (4) [K₃]
22. i) Discuss the structure and functions of sucrose and lactose. (10) [K₃]
ii) List out the differences between starch and cellulose. (4) [K₃]
23. i) Explain the structure and functions of phospholipids. (10) [K₄]
ii) Enumerate the chemical properties of fats. (4) [K₄]
24. i) Describe the dihybrid and trihybrid crosses with suitable example. (10) [K₄]
ii) Criticize exchange of genes through crossing-over. (4) [K₄]
25. i) Discuss the polyploidy and aneuploidy with suitable examples. (10) [K₃]
ii) Appraise the salient features of Watson & Crick double-stranded DNA. (4) [K₃]
26. Explain the structure and importance of polytene chromosomes and Lampbrush chromosome. (7+ 7) [K₅]
[K₅]
