Register Number:……..

KUMARAGURU
college of technology
character is life

B.TECH DEGREE EXAMINATIONS: JUNE 2017

(Regulation 2015)

Second Semester

BIOTECHNOLOGY

U15BTT201: Biomolecules and Genetics

COURSE OUTCOMES

CO1: Draw the structure and explain the classification and functions of carbohydrates

CO2: Describe the structure and functions of lipids, and cholesterol

CO3: Classify and discuss the properties and functions of amino acids, vitamins and minerals

CO4: Recall the concepts of Mendelian genetics and multiple allelism

CO5: Understand and explain the structure of chromosomes and related disorders

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Sucrose is disaccharide and it consists of CO1 [K_1]

   a) Galactose+ ribose b) Glucose+fructose

   c) Glucose+ Galactose d) Glucose+sucrose

2. Which one of the following is a heteropolysaccahride? CO3 [K_2]

   a) Starch b) Glycogen

   c) Heparin d) cellulose

3. Choose correct statements from the following with respect to functions of fats CO1 [K_3]

   i. Transport fat soluble vitamins

   ii. Enhance the food flavor and Texture

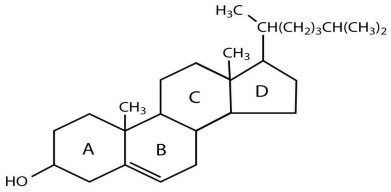
   iii. Providing direct energy

   iv. Insulating body

   a) i and ii b) iii & iv

   c) i , ii and iv d) iv only

4. Identify the following chemical structure CO3 [K_2]



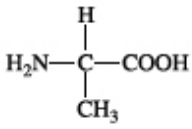
a) Glycolipid
b) phospholipid
c) Cholesterol
d) Cortisol

5. Choose the incorrect components of DNA CO5 [K_2]

i. Ribose
ii. Phosphate group
iii. Uracil
iv. Thymine
v. Deoxyribose

a) i&ii
b) i&iii
c) iv&v
d) i&iv

6. Identify the following amino acid based its side chain CO3 [K_2]



a) Alanine
b) Methionine
c) Phynine alanine
d) Cystine

7. Assertion (A): Human being cannot synthesis enzyme which cleave beta 1-4 glycosidic bond. CO1 [K3]
Reason (R): Cellulose is the largest polysaccharide present on the earth

a) Statement A is true & statement R is correct explanation of A
b) Statement A & statement R is not correct explanation of A
c) A is correct R is false
d) A is false and R is true

8. Assertion (A): Polyunsaturated fatty acids (PUFA) are called as essential fatty acids. CO3 [K_4]
Reason (R): PUFAs are synthesized by human body and are also obtained through diet.

a) Statement A is true & statement R is correct explanation of A
b) Statement A & statement R is not correct explanation of A
c) A is correct R is false
d) A is false and R is true

9. Which one of the following sugar is present in RNA? CO5 [K_2]

a) Deoxyribose
b) Glucose
c) Ribose
d) Lactose

10. Match list-I with list-II CO3 [K_2]

List I : amino acid	List II :property
A. Valine	i. Aromatic amino acid
A. Methionine	ii. Non-polar amino acid
B. Phenylalanine	iii. Sulphur containing amino acid
D. Arginine	iv. Basic amino acid

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

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. What is reducing sugar and give one example. CO1 [K_2]
12. Compare homopolysaccharide and hetero polysaccharide. CO1 [K_3]
13. Define saponification number and relate it with oil quality. CO2 [K_3]
14. Compare saturated and unsaturated fatty acid. CO2 [K_3]
15. Why are few fatty acids called as essential for human health? CO3 [K_2]
16. What are microelements and give few examples with their role in human physiology? CO3 [K_2]
17. State the significance of back cross. CO4 [K_3]
18. What is linkage? CO4 [K_3]
19. Draw the organization of eukaryotic chromosome. CO5 [K_4]
20. What is Aneuploidy? CO3 [K_2]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. (i) Compare DNA and RNA with respect to their physical and chemical properties. (10) CO5 [K_2]

    (ii) Mention the importance of telomere in chromosome. (4)

22.	(i) Classify various types of phospholipids and explain their physiological functions.	(7)	CO2	[K_2]
	(ii) Draw the structure of cholesterol and explain its role in human physiology.	(7)		
23.	Discuss source, physiological functions of any ONE fat soluble and ONE water soluble vitamin.	(7) (7)	CO3	[K_2]
24.	(i) Explain multiple allele with suitable example. Relate the multiple allele with ABO blood group.	(10)	CO4	[K_3]
	(ii) Why are AB^- blood group people called as universal acceptor of blood?	(4)		
25.	(i) Discuss sex linked genetic diseases with suitable example.	(10)	CO5	[K_3]
	(ii) How is genetic disease diagnosed before birth?	(4)		
26.	(i) Draw the structure the lactose and list the major of sources for the lactose.	(7)	CO1	[K_3]
	(ii) Give an account on physiological role of hyaluronic acid and its importance in medical treatment.	(7)		

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