BRAINWARE UNIVERSITY

Term End Examination 2022
Programme – B.Sc.(Ag)-Hons-2021/B.Sc.(Ag)-Hons-2022
Course Name – Fundamentals of Plant Biochemistry and Biotechnology
Course Code - CC-BAG172(T)
(Semester I)

Full Marks : 50 **Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 20=20

1. *Choose the correct alternative from the following :*

(i) What is the potential benefits of GM crops?

a) Higher crop yields
b) Reduced farm costs
c) Increased farm profit
d) All of these

(ii) Apply the correct term in the following blanks 'The natural genetic engineer, Agrobacterium tumefaciens is one type of.....'.

a) Soil Bacterium
b) Air Bacterium
c) Marine Bacterium
d) None of these

(iii) What is the potential hazards of GM crops?

a) The danger of unintentionally introducing allergens and other antinutrition factors in foods
b) The likelihood of transgenes escaping from cultivated crops into wild relatives
c) The potential for pests to evolve resistance to the toxins produced by GM crops
d) All of these

(iv) Identify the dye which is used to trace the DNA in agarose gel under UV ray exposure

a) MnBr
b) EtBr
c) Bromide
d) None of these

(v) Molecular Scissor' is a one type of compound required in recombinant DNA technology and also know as -

a) DNA Ligase
b) DNA Polymerase
c) Restriction Endonuclease
d) Topoisomerase

(vi) Which international institute is continuously working on the progress of 'Genetic Engineering'-

a) ICGEB
b) NBTB
c) NRCPB
d) IARI

(vii) Interpret, what is 'T-DNA' -

a) Tandem DNA
b) Tumor-inducing DNA
c) Total DNA
d) Transfer DNA

(viii) Predict which term is correct for the statement- 'A gene contain a set of coding

regions'-

a) Recon
b) UTR
c) Exon
d) Intron

(ix) The monosaccharide's differ from each other in their configuration around a hemiacetal carbon atom is known as

a) Enantiomers
b) Diastereomers
c) Epimers
d) Anomers

(x) Buffer 's function is

a) resist the pH of the solution
b) adsorb of the pH meter
c) Change the pH of the solution
d) increases pH of the solution

(xi) Which of the following indicates that the pKA of the acid is numerically equal to the pH of the solution when the molar concentration of the acid and its conjugate base are equal?

a) Michaelis-Menten equation
b) Haldanes equation
c) Henderson-Hasselbalch equation
d) Hardy-Windberg law

(xii) Non reducing sugar measure by which of the following method

a) DNS method
b) Lowry method
c) Anthron method
d) none of these

(xiii) Apply the correct term in the sentence. In cDNA synthesis, the eukaryotic ..... is used as a template to generate DNA

a) mRNA
b) tRNA
c) rRNA
d) None of these

(xiv) Use the appropriate name of the enzyme reverse transcriptase-

a) RNA dependent DNA polymerase
b) DNA dependent DNA polymerase
c) RNA dependent RNA polymerase
d) None of these

(xv) In the glycolysis reaction, the enzyme is required for glucose to glucose-6-phosphate

a) Hexokinase
b) Kinase
c) Dextrase
d) Zymage

(xvi) Identify, which restriction enzymes used abundantly in rDNA technology.

a) Type I
b) Type II
c) Type III
d) None of these

(xvii) Amylose is

a) Branched polymer
b) Condensation polymer
c) Unbranched polymer
d) None of these

(xviii) Oligo saccharides has

a) O-linked and N-linked
b) P linked and O linked
c) O-linked and S-linked
d) P linked and S linked

(xix) What means Molecular cloning?

a) Isolating a defined DNA sequence
b) Obtaining multiple copies of defined DNA sequence in vivo
c) DNA multiplication using PCR
d) None of these

(xx) Identify which one is correct for the term-'Natural genetic engineer'.

a) Agrobacterium tumefaciens
b) Bacilius subtilis
c) E. coli
d) None of these

Group-B

(Short Answer Type Questions) 2.5 x 10=25

2. Write down the basic differences among A, B and Z type of DNA. (2.5)
3. Write down the furanose cyclic structure of fructose (2.5)
4. What are the different characteristics t-RNA belongs to? (2.5)
5. How can you differentiate between Old and New Biotechnology? Briefly mention. (2.5)
6. What is the difference between Epimer and Anomer. Give examples (2.5)

7. What do you mean by plant genetic engineering? (2.5)
8. Write Short Notes on Micropropagation. (2.5)
9. Why water is called Universal solvent (2.5)
10. Write short notes on- Bt Cotton. (2.5)
11. What is Fatty Acid and give examples (2.5)

OR

Write short notes on- Callus in Plant Tissue Culture. (2.5)

Group-C

(Long Answer Type Questions) $5 \times 1 = 5$

12. What are the different methods of Gene transfer and which one is widely accepted by the scientists? Write briefly on the widely used method. (5)

OR

Write down the 10 steps for Glycolysis pathway (5)

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