

BT16013-Bioconjugate Technology and Applications

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer ALL questions

PART A - (8 X 2 = 16 Marks)

1. _____ is a positively charged amino acid
a. Alanine b. Tryptophan c. Arginine d. Cysteine
2. Which of the following is an aromatic amino acid?
a. Glycine b. Valine c. Phenylalanine d. Leucine
3. N-linked glycosylation occurs in the amino acid _____.
a. Asparagine b. Tryptophan c. Tyrosine d. Isoleucine
4. Disuccinimidyl suberate (DSS) is a type of _____.
a. Heterobifunctional crosslinker b. Homobifunctional crosslinker c. Trifunctional crosslinker
5. Does nick translational labelling helps in creating probes?
6. How biotin is used to creates a non-radioactive probe?
7. Explain the use of carrier proteins in eliciting immune response.
8. How colloidal gold is used for the diagnostic development?

PART B - (4 X16 = 64 Marks)

09. (a) Explain application of bioconjugation techniques in diagnostics and (16) therapeutics of various diseases.

(OR)

- (b) Draw the structure of various amino acids and explain the role of their (16) functional groups for bioconjugation of lipids, carbohydrates and proteins.

10. (a) How the amine reactive chemistry and carbonyl reactive chemistry helps in (16) bioconjugation?

(OR)

- (b) Explain about the properties of sulphydryl and photo reactive cross linkers (16) for creating biconjugation.

11. (a) Differentiate homo, hetero and trifunctional crosslinker and explain the (16) properties of these reagents with example.

(OR)

- (b) Write in detail about the properties of horse radish peroxidase, alkaline phosphatase, beta-galactosidase and glucose oxidase enzymes.
12. (a) How do you achieve the bioconjugation of antibodies with enzymes and nucleic acids for therapeutic and diagnostic application?

(OR)

- (b) Justify that nucleic acid probes can be created using the following techniques such as random primed labelling, PCR mediated labelling, terminal deoxy nucelotidyl labelling.