Ph.D. ENTRANCE EXAMINATION- 2015

FACULTY OF APPLIED SCIENCES

BIOTECHNOLOGY

Time: 140 Minutes Maximum Marks: 160

***Note**: Answer **any twelve** questions from Section **B** and **one** question from Section **C** in the subject concerned. In Section **B, each** question carries **10** marks. Section **C** carries **40** marks. In Section **B** an answer should not exceed **100** words. In Section **C,** an answer should not exceed **500** words.*

SECTION – B

1. Comment on A, B, Z forms of DNA. Discuss their structural features.
2. What are retrotransposons? Comment on their applications.
3. Discuss the various types of repetitive sequences in DNA. Comment on their utilities.
4. Discuss the various types of mechanisms involved in post translational modifications.
5. Discuss the various stages in a typical bioprocess and comment on the significance of each stage.
6. Discuss the important strategies adopted in the media designing of industrial fermentation.
7. Discuss the different modes of direct gene transfer in plants.
8. What are plant protoplasts? Comment on their applications.
9. What is hybridoma technology? Comment on its applications.
10. Discuss the various types of media used in animal cell culture.
11. What is Gel-filtration? Comment on the working principle of Gel-filtration.
12. What is RFLP? Discuss the various steps involved in RFLP.
13. Discuss the various biological methods for effluent treatment.
14. What is composting? Discuss the various factors affecting composting.
15. Discuss the ideal characteristics required for a vector. Give examples for bacterial plant and animal vector systems.
16. What are genetically modified foods? Comment on its merits and demerits.

SECTION - C

1. Prepare a proposal highlighting the objectives, methodology and significance of apoptosis and its involvement in the molecular regulation of cancer, with special reference to natural apoptotic factors.
2. How will you proceeds to purify an intracellular protein of interest from a bacterial isolate? Explain the different strategies you will adopt in designing the methods of purification.
3. Discuss in detail the steps you will adopt to develop a RAPD marker for a new variety of plant you have observed. Explain the criteria you will adopt for primer designing.

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