

**B.SC BIOTECHNOLOGY**  
**SEMESTER: 6 TH**  
**AGRICULTURAL BIOTECHNOLOGY**  
**BBT - 28**

**Duration: 3 Hrs.**

**Marks: 70**

{ Part : A (Objective) = 20  
Part : B (Descriptive) = 50 }

**[ PART-B : Descriptive ]**

**Duration: 2 Hrs. 40**

**Mins.Marks: 50**

**[ Answer question no. One (1) & any four (4) from the rest ]**

1. What do you mean by molecular marker? Explain how Simple Sequence Repeats marker technique can be used in plant diversity analysis. 3+7=10
2. Write a note on the following: 2+3+5=10
  - (a) Direct gene transfer
  - (b) Vector mediated gene transfer
3. Describe the types and their functions of different plant hormones. 5+5=10
4. Name different techniques of nucleic acids hybridization. Explain southern blotting method with diagram. 3+7=10
5. Define micropropagation. Explain how this technique helps in agriculture. 3+7=10
6. Discuss "Antibiosis" mechanism in the biological control of plant diseases? Why Mycorrhizae family has been given a wide importance in the biological control of plants? How does the biological control of Pseudomonads species work? Cite with examples. 4+3+3=10
7. What are the differences between biofertilizers and chemical fertilizers? What are the major approaches for the biocontrol of pests in soil? Mention the major requirements for the successful "biocontrol" in Agricultural biotechnology? 2+4+4=10
8. What is Bt toxin in Agricultural Biotechnology? What are the modes of actions of this toxin? Give examples of natural products 4+3+3=10

mentioning active ingredients used for biological control. What are Semiochemicals used for biocontrol process.

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[ PART-A : Objective ]

Choose the correct answer from the following:

1X20=20

1. Organic farming is the technique of raising crops through uses of?
  - a. Manures
  - b. Biofertilizers
  - c. Resistant varieties
  - d. All of the above
2. Pyrethrin is got from
  - a. *Azadirachta indica*
  - b. *Urtica dioica*
  - c. *Tagetes erecta*
  - d. *Chrysanthemum cinerariifolium*
3. *Azola* is used as biofertilizer as it has
  - a. *Rhizobium*
  - b. Cyanobacteria
  - c. Mycorrhiza
  - d. Large quantity of humus
4. Insecticides generally attack
  - a. Respiratory system
  - b. Nervous system
  - c. Muscular system
  - d. Circulatory system
5. Organisms associated with sorghum and cotton, which provide nutrition to them are
  - a. *Azospirillum*, *Azotobacter*
  - b. *Azotobacter*, *Azospirillum*
  - c. *Anabaena*, *Rhizobium*
  - d. *Rhizobium*, *Azotobacter*
6. Which is true for DDT? It is
  - a. Not a pollutant
  - b. An antibiotic
  - c. An antiseptic agent
  - d. A non-degradable pollutant
7. IPM stands for
  - a. Integrated pest manufacture
  - b. Integrated plant management
  - c. Integrated pest management
  - d. Integrated pest monitoring
8. DNA fingerprinting was discovered by
  - a. James Watson
  - b. Alec Jeffreys
  - c. Frederick Fanger
  - d. Hargobind Khorana
9. *Bacillus thuringiensis* is used to control
  - a. Nematodes
  - b. Fungal pathogens
  - c. Bacterial pathogens
  - d. Insect pests
10. One of the following processes involves southern blotting technique
  - a. rDNA technology
  - b. DNA finger printing
  - c. Production of transgenic plants
  - d. Formation of suspension culture
11. Genetic engineering is the study of
  - a. Genes in general
  - b. Humans in genes
  - c. Genomes in general
  - d. Human genome
12. Sterilization of tissue culture medium is done by
  - a. Mixing the medium with anti fungal agents
  - b. Filtering the medium through fine sieve
  - c. Autoclaving of medium at 120°C for 15 min
  - d. Keeping the medium at -20°C
13. The browning of culture medium induced by some explants can be prevented by the addition of
  - a. GA
  - b. 2-4-D
  - c. IBA
  - d. PVP
14. Which of the following is not used as a cryoprotectant
  - a. Glycerol
  - b. DMSO
  - c. Polymer
  - d. PEG



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Date Stamp: \_\_\_\_\_

- 15. Anther culture provide a method for the production of
  - a. Polyploidy
  - b. Heterozygous line
  - c. Apomictic line
  - d. Homozygous line
  
- 16. A good molecular marker must be
  - a. Polymorphic
  - b. Heritable
  - c. Both (a) and (b)
  - d. None of the above
  
- 17. Which of the following vector is suitable for DNA sequencing
  - a. EMBL
  - b. PBR 322
  - c. M13
  - d. Lambda
  
- 18. Gravitropism is a tropic movement of plants in response to
  - a. Gravity
  - b. Light
  - c. Both (a) and (b)
  - d. None of the above
  
- 19. Auxin, the first plant hormone was discovered by Frits Went as a growth promoting chemical in the tip of coleoptiles of
  - a. *Avena sativa*
  - b. *Oryza sativa*
  - c. *Pisum sativa*
  - d. None of the above
  
- 20. Which of the following is a co-dominant marker
  - a. AFLP
  - b. RAPD
  - c. SSR
  - d. All of the above

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| SESSION 2016-17<br>COURSE _____ PAPER Code: _____<br>NAME OF THE PAPER: _____<br>SEMESTER _____  |                                       |                  |                         |
| <b>Instructions to Candidates</b><br>1. This answer booklet has 4 pages. Please check before writing whether it is complete or in good condition.<br>2. Do not write your name anywhere in the answer booklet.<br>3. Write legibly on both sides of the paper<br>4. You may use some space for any rough notes or calculation on the answer booklet if you need. These rough notes, calculations must be scored out before submitting the answer booklet.<br>5. Do not bring any book or loose paper in the examination hall.<br>6. Do not tear any page from the answer booklet.<br>7. Do not write anything on the question paper or blotting paper or any pieces of paper while you are in the examination hall.<br>8. Any act of indiscipline or misbehavior in the examination hall will result in your expulsion.<br>9. No examinee is allowed to leave the examination hall until 30 minutes lapse after the commencement of the examination.<br>10. Additional answer sheet will be supplied after the main answer booklet is completed. | <b>For Objective Type Questions</b>   | Session: 2016-17 |                         |
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