Reg. No.: .....

Name: .....

K16U 0140

VI Semester B.Sc. Degree (CCSS-Reg./Supple./Improv.) Examination, May 2016
CORE COURSE IN BOTANY/PLANT SCIENCE
6B12 BOT/PLS : Biotechnology, Nanobiotechnology and Plant Tissue Culture
(2012 Adm. Onwards)

Time : 3 Hours Total Weightage : 30

SECTION – A

Answer **all** (questions in bunches of **four**. **Each** bunch carries a weightage of **1**).

1. Choose the correct answer.

   i) A macro nutrient
   a) Zn b) B c) Cu d) P

   ii) 1nm is equal to
   a) 10^{-7} m b) 10^{-8} m c) 10^{-9} m d) 10^{-10} m

   iii) A Palindrome sequence
   a) GAATTC CTTAAG b) ACCG TGGC c) CTGA GACT d) None of these

   iv) A cytokinin
   a) 2, 4 – D b) 2, 4, 5 – T c) BAP d) IAA

2. Write **true** or **false**.

   i) DNA ligase is also called as polynucleotide ligases.

   ii) Triploid plants can be produced by ovary culture.

   iii) pBR 322 is a phage vactor.

   iv) Nano devices can be engineered to treat malfunction in cells.

P.T.O.

3. Fill in the blanks.
   i) Processes and methods employed in creation of nanomaterials and structures are called _____.
   ii) _____ is a carbon source commonly used in tissue culture medium.
   iii) Blotting of protein is named as _____.
   iv) _____ is used for surface sterilization of explant.

4. Match the following.

	A	B	C
i	Hydrogel	Fusogen	*Catheranthus roseus*
ii	PEG	Hydrophilic polymer	Protoplast fusion
iii	Secondary metabolite	Luciferase	Absorb water
iv	*Lux* gene	Serpentine	Selectable marker

5. Answer in **one** sentence.
   i) Totipotency
   ii) Golden rice
   iii) cDNA
   iv) A nanoscaled biomolecule. **(5×1=5)**

SECTION – B

Answer **any four**. Differentiate the following. **Each** question carries a weightage of **1**.

6. Bioethics and biosafety.
7. Somatic embryo and cybrid.
8. BAC and YAC.
9. Dedifferentiation and redifferentiation.
10. FISH and PUC.
11. Pollen culture and embryo culture. **(4×1=4)**

SECTION – C

Answer **any five**. Short answer question. **Each** question carries a weightage of **1**.

12. Explain bioreactor.
13. What is drug targeting ?
14. What is southern blotting ?
15. Explain RNA interference.
16. What is meristem culture ?
17. Write a note on patenting of life forms.
18. Write about synthetic seeds. **(5×1=5)**

SECTION – D

Answer **any six**. Short answer question. **Each** question carries a weightage of **2**.

19. Write about artificial bionanostructures.
20. Write a note on RFLP & RAPD.
21. Explain terminator gene.
22. Write about various types of sterilization techniques used in plant tissue culture.
23. Explain DNA sequencing.
24. Give an account on enzymes involved in recombinant DNA technology.
25. Give a note on use of gene transfer technique for Herbicide resistance.
26. Explain DNA microarrays and biosensors. **(6×2=12)**

SECTION – E

Answer **any one**. Essay type question. **Each** question carries a weightage of **4**.

27. Explain vector mediated and direct DNA transfer techniques.
28. Explain genetics of nitrogen fixation and its biotechnological applications.
29. Describe technique of protoplast isolation, culture and its application. **(1×4=4)**

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