SECTION – D

Answer **any six**.

(Short essay questions; **each** question carries a weightage of **2**.)

19. Write an account on gene silencing.

20. Explain gene therapy.

21. Explain the construction of a cDNA library.

22. Give an account on bioapplication of nanotechnology.

23. How can you improve flower colour in a plant using gene transfer technique ?

24. Write about synthetic seeds.

25. Give your opinion about patenting life forms.

26. How can we visualize biological structures at nanoscale ? **(6×2=12)**

SECTION – E

Answer **any one**.

(Essay type questions; **each** question carries a weightage of **4**.)

27. Explain how gene transfer technique can be used to improve insect resistance and herbicide resistance.

28. What is MS media ? Explain components of media mentioning the role of each component.

29. What is vector mediated and vector less gene transfer ? How *Agrobacterium* can be used for gene transfer ? **(1×4=4)**

M 6012

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CCSS – Reg./Suppl./Improv.) Examination, May 2014
Core Course : Botany/Plant Science
6B14 BOT/PLS : BIOTECHNOLOGY, NANOBIOTECHNOLOGY AND PLANT TISSUE CULTURE

Time : 3 Hours Total Weightage : 30

***Instruction** : Draw diagrams **wherever** necessary.*

SECTION – A

Answer **all**.

(Questions in bunches of **four**. **Each** bunch carries a weightage of **1**.)

1. Choose the correct answer :
   i) A plasmid vector
      a) YAC b) pBR322 c) λgt 10 d) EMBL
   ii) Blotting of RNA
      a) Southern blotting b) Northern blotting
      c) Western blotting d) None of these
   iii) Production of haploids
      a) Protoplast culture b) Embryo culture
      c) Anther culture d) Endosperm culture
   iv) Nano of a given unit
      a) 10^{-3} b) 10^{-7} c) 10^{-9} d) 10^{-11}
2. i) A plant tissue culture media
      a) MS b) B5 c) N6 d) All of these
   ii) MB is a
      a) Plasmid b) Yeast chromosome
      c) Filamentous bacteriophage d) Cosmid

P.T.O.

iii) cDNA has

a) introns b) no introns

c) no exons d) multiple tandem repeats

iv) A physical DNA delivery method

a) Agrobacterium mediated b) PCR

c) pBR322 d) Microprojectile bombardment

3. State **true** or **false** :

i) Restriction enzymes cut at palindromic sequences.

ii) Protoplast fusion can be induced by Glycerol.

iii) Mercuric chloride can be used for surface sterilization of explant.

iv) Solid state synthesis of nanoparticles involves a heat treatment step.

4. Fill in the blanks :

i) An antibiotic resistance gene in pBR322 is _____

ii) Ti plasmid is present in _____

iii) Small DNA or RNA recognize complementary sequences and used for identification and isolation of specific DNA is _____

iv) Most common carbon source used in plant tissue culture media is _____

5. Rearrange column **B** and **C** to match column **A**.

	A	B	C
i	Taq polyerase	University of California	BAP
ii	pUC	Cytokinin	*Haemophilus influenza*
iii	Restriction enzyme	PCR	Lac z gene
iv	Organogenesis	Hind II	*Thermus aquaticus*

(5×1=5)

SECTION – B

Answer **any four**.

(Differentiate the following. **Each** question carries a weightage of **1**.)

6. DNA and RNA.

7. Nif gene and terminator gene.

8. Cybrid and hybrid.

9. Endonucleases and ligases.

10. Atomic force microscope and magnetic resonance force microscopy.

11. Redifferentiation and dedifferentiation. **(4×1=4)**

SECTION – C

Answer **any five.**

(Short answer questions, **each** question carries a weightage of **1**.)

12. What is Ti plasmid ?

13. Give two nanoscaled biomolecules.

14. What is RAPD ?

15. What is totipotency ?

16. Name two genes which can be used as selectable markers.

17. Give a note on golden rice.

18. What is somaclonal variation ? **(5×1=5)**