



23. Explain regulation of *nif* gene expression.
24. Give an account on direct DNA uptake.
25. Write about ethical and legal issues associated with patenting of life forms.
26. Explain protoplast culture and its significance. (6×2=12)

SECTION – E

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

27. Write about vectors. Explain vector mediated gene transfer giving emphasis to *Agrobacterium tumefaciens*.
28. Describe the composition and preparation of MS medium.
29. Explain PCR and DNA finger printing. Write on their applications. (1×4=4)



Reg. No. :

Name :



VI Semester B.Sc. Degree (CCSS – Reg./Supple./Improv.)

Examination, May 2015

Core Course in Botany/Plant Science

6B12 BOT/PLS : BIOTECHNOLOGY, NANOBIOTECHNOLOGY AND
PLANT TISSUE CULTURE
(2012 Admn.)

Time : 3 Hours

Max. 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 nonviable material used in a medical device, intended to interact with biological system.
- | | |
|--------------------|------------------|
| a) Protein | b) Biomaterial |
| c) Vascular tissue | d) None of these |
- ii) A cytokinin
- | | |
|--------|------------|
| a) IBA | b) Kinetin |
| c) NAA | d) 2,4-D |
- iii) EcoR 1 is a
- | | |
|------------------------|------------------------|
| a) Exo nuclease enzyme | b) Endonuclease enzyme |
| c) Ligase | d) All of these |
- iv) Deletion of oncogenes from T DNA
- | | |
|-------------------|-----------------------|
| a) Co-integration | b) Bio-transformation |
| c) Co-suppression | d) Disarming |

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

- Manufacture of nanoparticles can be achieved through colloidal chemistry.
- Protein is a secondary metabolite.
- Genetic variability among cultured cells is called cytodifferentiation.
- pBR 322 is a plasmid vector.

3. Fill in the blanks :

- Determination of base sequence of a DNA fragment is known as _____.
- _____ is a natural auxin.
- _____ is the carbon source commonly used in Plant tissue culture medium.
- Potential of plant cell to develop into a multicellular organism is called _____.

4. Match the following :

	A	B	C
i	Reporter genes	Starch	Vitamins
ii	Biopolymer	Permit easy identification of phenotype	Antisense RNA technology
iii	Filter sterilization	Slow ripening	Polysaccharide
iv	Falvr Savr tomato	Thermolabile compound	Selection of clones

5. Answer in **one** sentence :

- YAC
- Agar Agar
- Laminar air flow cabinet
- GMO.

(5×1=5)

SECTION – B

Answer **any four**. (Differentiate the following : **Each** question carries a Weightage of 1).

- Ti & Ri plasmid
- RFLP & RAPD
- Cybrid & Hybrid
- cDNA & antisense RNA
- Dedifferentiation & Redifferentiation.
- Anther culture & pollen culture.

(4×1=4)

SECTION – C

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

- Write a note on human genome project.
- Give an account on cell suspension culture.
- Write about meristem culture.
- Explain FISH.
- What is nanobiotechnology ?
- Write about application of tissue culture in biodiversity conservation.
- What is gene silencing ?

(5×1=5)

SECTION – D

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

- Write a note on various sterilization techniques used in plant tissue culture.
- Write about restriction endonucleases.
- Explain synthesis of nanomaterials.
- Write about screening and selection of recombinants.