

NEET STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION — SINGLE CELL PROTEIN AND TISSUE CULTURE — PYQS

Max. Marks: 76

Questions: 19

Section A (MCQ) — 19 questions

Q.1 The capacity to generate a whole plant from any cell of the plant is called: [NEET (UG) 2024]

- (1) Totipotency (2) Micropropagation
(3) Differentiation (4) Somatic hybridization

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Q.2 Which of the following are fused in somatic hybridization involving two varieties of plants? [NEET (UG) 2024]

- (1) Callus (2) Somatic embryos
(3) Protoplasts (4) Pollens

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Q.3 Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): Spirulina is a microbe that can be used for reducing environmental pollution.

Reason (R): Spirulina is a rich source of protein, carbohydrates, fats, minerals and vitamins.

In the light of the above statements, choose the most appropriate answer from the options given below:

[NEET (UG) 2022 (Phase 2)]

- (1) (A) is not correct but (R) is correct
(2) Both (A) and (R) are correct and (R) is the correct explanation of (A)
(3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
(4) (A) is correct but (R) is not correct

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Q.4 Match **List-I** with **List-II**.

List-I		List-II	
a.	Protoplast fusion	i.	Totipotency
b.	Plant tissue culture	ii.	Pomato
c.	Meristem culture	iii.	Somaclones
d.	Micropropagation	iv.	Virus free plants

Choose the correct answer from the options given below. [NEET (UG) 2021]

- (1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(2) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
(3) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
(4) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

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Q.5 A protoplast is a cell - [AIPMT 2015]

- (1) undergoing division
(2) without plasma membrane
(3) without nucleus
(4) without cell wall

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Q.6 A technique of micropropagation is [AIPMT 2015 (Cancelled)]

- (1) somatic embryogenesis
(2) embryo rescue
(3) protoplast fusion
(4) somatic hybridisation

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Q.7 Which of the following enhances or induces fusion of protoplasts ? [AIPMT 2015 (Cancelled)]

- (1) Sodium chloride and potassium chloride
(2) IAA and kinetin
(3) Polyethylene glycol and sodium nitrate
(4) IAA and gibberellins

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Q.8 To obtain virus-free healthy plants from a diseased one by tissue culture technique, which part/parts of the diseased plant will be taken ? [AIPMT 2014]

- (1) Epidermis only
(2) Palisade parenchyma
(3) Both apical and axillary meristems
(4) Apical meristem only

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Q.9 In vitro clonal propagation in plants is characterized by : [AIPMT 2014]

- (1) Microscopy
- (2) Northern blotting
- (3) Electrophoresis and HPLC
- (4) PCR and RAPD

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Q.10 Tissue culture technique can produce infinite number of new plants from a small parental tissue. The economic importance of the technique is in raising:

[NEET 2013 (Karnataka)]

- (1) development of new species
- (2) genetically uniform population identical to the original parent
- (3) variants through picking up somaclonal variations
- (4) homozygous diploid plants

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Q.11 Which of the following statements is not true about somatic embryogenesis ?

[NEET 2013 (Karnataka)]

- (1) Somatic embryos can develop from microspores
- (2) Somatic embryo is induced usually by an auxin such as 2,4-D
- (3) The pattern of development of a somatic embryo is comparable to that of a zygotic embryo
- (4) A somatic embryo develops from a somatic cell

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Q.12 Consider the following four statements (a-d) and select the option which includes all the correct ones only :

- A. Single cell *Spirulina* can produce large quantities of food rich in protein, minerals, vitamins etc.
- B. Body weight-wise the microorganisms *Methylophilus methylotrophus* may be able to produce several times more proteins than the cow per day
- C. Common button mushrooms are a very rich source of vitamin C
- D. A rice variety has been developed which is very rich in calcium

[AIPMT 2012 (Mains)]

- (1) Statements B, C and D
- (2) Statements C, D
- (3) Statements A, C and D
- (4) Statements A, B

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Q.13 Which one of the following is a case of wrong matching?

[AIPMT 2012 (Prelims)]

- (1) Somatic hybridization - Fusion of two diverse cells
- (2) Callus - Unorganised mass of cells produced in tissue culture
- (3) Vector DNA - Site for tRNA synthesis
- (4) Micropropagation - In vitro production of plants in large numbers

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Q.14 Which part would be most suitable for raising virus-free plants for micropropagation?

[AIPMT 2012 (Prelims)]

- (1) Vascular tissue
- (2) Node
- (3) Bark
- (4) Meristem

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Q.15 Somaclones are obtained by :

[AIPMT 2009]

- (1) Tissue culture
- (2) Plant breeding
- (3) Genetic engineering
- (4) Irradiation

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Q.16 In order to obtain virus-free plants through tissue culture the best method is-

[AIPMT 2006]

- (1) Anther culture
- (2) Protoplast culture
- (3) Meristem culture
- (4) Embryo rescue

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Q.17 The technique of obtaining large number of plantlets by tissue culture method is called –

[AIPMT 2004]

- (1) Macropropagation
- (2) Organ culture
- (3) Plantlet culture
- (4) Micropropagation

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Q.18 Cellular totipotency is demonstrated by :

[AIPMT 2003]

- (1) All eukaryotic cells
- (2) Only gymnosperm cells
- (3) Only bacterial cells
- (4) All plant cells

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Q.19 What is the reason of formation of embryoid from pollen grain in tissue culture medium ?

[AIPMT 2002]

- (1) Double fertilization
- (2) Test tube culture
- (3) Cellular totipotency
- (4) Organogenesis

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	1	3	3	3	4	1	3	3	4	2	1
Ques.	12	13	14	15	16	17	18	19			
Ans.	4	3	4	1	3	4	4	3			