QB365 Question Bank Software Study Materials

Botany - Plant Tissue Culture 50 Important 1 Marks Questions With Answers (Book Back and Creative)

12th Standard

Biology

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) Totipotency refers to _____.

(a) capacity to generate genetically identical plants. (b) capacity to generate a whole plant from any plant cell / explant.

(c) capacity to generate hybrid protoplasts. (d) recovery of healthy plants from diseased plants.

2) Micro propagation involves _____.

(a) vegetative multiplication of plants by using micro-organisms.

(b) vegetative multiplication of plants by using small explants.

(c) vegetative multiplication of plants by using microspores.

(d) Non-vegetative multiplication of plants by using microspores and megaspores.

3) Match the following :

1) Totipotency	A) Reversion of mature cells into meristerm
2) Dedifferentiation	B) Biochemical and structural changes of cells
3) Explant	C) Properties of living cells develops into entire plant
4) Differentiation	D) Selected plant tissue transferred to culture medium

(a)

1	**2**	**3**	**4**
C	**A**	**D**	**B**

(b)

1	2	3	4
A	C	B	D

(c)

1	2	3	4
B	A	D	C

(d)

1	2	3	4
D	B	C	A

4) The time duration for sterilization process by using autoclave is _____ minutes and the temperature is _____.

(a) 10 to 30 minutes and 125° C **(b) 15 to 30 minutes and 121° C** (c) 15 to 20 minutes and 125° C

(d) 10 to 20 minutes and 121° C

5) Which of the following statement is correct

(a) Agar is not extracted from marine algae such as seaweeds

(b) Callus undergoes differentiation and produces somatic embryoids.

(c) Surface sterilization of explants is done by using mercuric bromide (d) P^H of the culture medium is 5.0 to 6.0

6) Select the incorrect statement from given statement.

(a) A tonic used for cardiac arrest is obtained from Digitalis purpuria

(b) Medicine used to treat Rheumatic pain is extracted from Capsicum annum

(c) An anti malarial drug is isolated from Cinchona officinalis.

(d) Anti-cancinogenic property is not seen in Catharanthus roseus.

7) Virus free plants are developed from _____.

(a) Organ culture **(b) Meristem culture** (c) Protoplast culture (d) Cell suspension culture

8) The prevention of large scale loss of biological interity ____.

(a) Bionatent (b) Bioethics **(c) Biosafety** (d) Biofuel

(a) Biopatent (b) Bioethics **(c) Biosafety** (d) Biofuel

9) Cryopreservation means it is a process to preserve plant cells, tissues or organs _____.

(a) at very low temperature by using ether. (b) at very high temperature by using liquid nitrogen

(c) at very low temperature of -196°C by using liquid nitrogen (d) at very low temperature by using liquid nitrogen

10) Solidifying agent used in plant tissue culture is _____.

(a) Nicotinic acid (b) Cobaltous chloride (c) EDTA **(d) Agar**

11) The production of secondary metabolites require the use of _____.

(a) Protoplast culture (b) Organ culture **(c) Cell suspension culture** (d) Virus free germ culture

12) Which of the following condition favours callus induction?

(a) Temperature of 25°C ± 5°C with 12 hours of photoperiod (b) Temperature of 25°C ± 2°C with 18 hours of photoperiod

(c) Temperature of 25°C ± 5°C with 14 hours of photoperiod **(d) Temperature of 25°C ± 2°C with 16 hours of photoperiod**

13) Protoplast are the cells devoid of _____

(a) Cell wall (b) Cell membrane (c) Plasma membrane (d) both A and B

14) A widely used fusogen in protoplast culture is _____

(a) Polymethyl glycol **(b) Polyethylene glycol** (c) Polyethylene chloride (d) Polyvinyl chloride

15) Synseeds are developed by encapsulating embryoids with _____.

(a) Sodium chloride (b) Potassium iodide **(c) Sodium alginate** (d) Potassium dichromate

16) The optimal pH of culture medium is generally _____.

(a) Acidic (b) Basic (c) Neutral (d) Slightly basic

17) Identify the correct sequence regarding steps involved in PTC

(a) Sterilization → Incubation → Inoculation → Embryogenesis → Hardening

(b) Inoculation → Induction → Sterilization → Hardening → Embryogenesis

(c) Induction → Incubation → Inoculation → Hardening → Sterilization

(d) Sterilization → Inoculation → Incubation → Embryogenesis → Hardening

18) Dimethyl sulphoxide is a _____.

(a) Solidifying agent **(b) Cryoprotectant** (c) Fusogenic agent (d) Stimulant

19) Assertion (A) : Incubation is followed by Inoculation.
Reason (R) : Explant is inoculated to media.

(a) Both A and R are correct but R is not a correct explanation to A **(b) R explains A** (c) A is correct R is incorrect

(d) Both A and R are incorrect

20) Assertion (A) : Sterilization helps to overcome microbes.
Reason (R) : Explants are autoclaved.

(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A **(c) A is correct R is incorrect**

(d) Both A and R incorrect

21) Assertion (A) : Protoplasts are cells devoid of cell wall.
Reason (R) : Secondary metabolites are synthesized by protoplasmic fusion.

(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A **(c) A is correct R is incorrect**

(d) Both A and R are incorrect

22) Assertion (A) : Liquid nitrogen is used in cryopreservation techniques.
Reason (R) : Gene bank DNA bank are the parts of germplasm conservation.

(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A (c) A is correct R is incorrect
(d) Both A and R are incorrect

23) Identify the cryoprotectant

(a) Dimethyl formamide (b) Fructose **(c) Glycerol** (d) Sodium alginate

24) Identify the wrong statement:

(a) Artificial seeds are stored for long time under cryopreservation
(b) Somatic embryos are used for artificial seed production (c) Period of dormancy of artificial seeds is greatly reduced
(d) Encapsulation of embryoids is done using cryoprotectant

25) Identify the plant tissue used for virus free germplasm

(a) Apical meristem (b) Intercalary meristem (c) Lateral meristem (d) Plate meristem

26) Identify the incorrect statement:

(a) Explants are surface sterilized
(b) Nutrient media are autoclaved
(c) Culture rooms are UV radiated for 15 minutes
(d) Glasswares and accessories are autoclaved

(a) a only (b) b and c (c) d only **(d) none of the above**

27) The enzymatic mixture for chemical isolation of protoplast is

(a) 0.5% macrozyme, 2% onozuka cellulase, 13% mannitol (b) 1.5% macrozyme, 0.5% onozuka cellulase, 12% sorbitol
(c) 2% macrozyme, 0.5% onozuka cellulase, 13% sorbitol (d) 0.1% macrozyme, 2% onozuka cellulase, 15% mannitol

28) The term used to define the ability of a cell to generate entire individual is

(a) Pleuripotent **(b) Totipotent** (c) Multipotent (d) Unipotent

29) The phenomenon of reversion of mature cells to meristematic state leading to callus formation is_____

(a) Redifferentiation **(b) Dedifferentiation** (c) either (a) or (b) (d) none of these

30) Identify the mismatched pair:

(a) Digoxin - Digitalis purpuria **(b) Codeine - Capsicum annum** (c) Vincristine - Catharanthus roseus
(d) Quinine - Cinchona officinalis

31) Gottlieb haberlandt proposed _____concept.

(a) Tissue culture **(b) Totipotency** (c) Meristem culture (d) Differentiation

32) Which part of Lamium purpureum is used for tissue culture?

(a) Epidermis (b) Cortex (c) Vascular tissues **(d) MesophyII**

33) _____ ,is regarded as the father of tissue culture.

(a) Gottlieb Haberlandt (b) P.R. white (c) Chilton (d) F.C. Steward

34) Find the correct pair

(a) 0. 1% mercuric chloride-surface sterilization (b) 60%-70% -humidity (c) 25ºC + 30ºC- temperature
(d) Hardening-in vivo

35) _____ is used as an fusogenic agent

(a) Polyethane glycol (b) Polyethene glycol **(c) Polyethylene glycol** (d) Polymethane glycol

36) The fusion product of protoplasts without nucleus of different cells is called is _____

(a) Hybrid **(b) cybrid** (c) Embroyoids (d) Debris

37) _____ is the prevention mechanism to protect harmful incidents due to biohazards or pathogens

(a) IPR (b) Bioethics **(c) Biosafety** (d) Patent

38) ELSI program addresses issues related to _____

(a) GMO **(b) Genomic research** (c) Biopatent (d) Trade secret

39) _____ is a regulatory authority for release of genetically modified products or organisms into the environment.

(a) GEAC (b) ELSI (c) Biosafety (d) Bioethics

40) Match the following

(A)	micropropagation	(1)	DNA bank
(B)	Cryoperservation	(2)	Sodium alginate
(C)	Germplasm conservation	(3)	Banana
(D)	Artificial seeds	(4)	- 196 °C

(a) 1, 3, 4, 2 (b) 2, 1, 3, 4 **(c) 3, 4, 1, 2** (d) 4, 3, 2, 1

41) Which one of the following statements is true regarding IPR?

(a) The discoverer has the full rights on his / her property.

(b) IPR - includes only the process of the product not trade secrets (c) IPR is not protected by laws framed by the country

(d) The discoverer can use his discovery for his own company but can not sell it to others

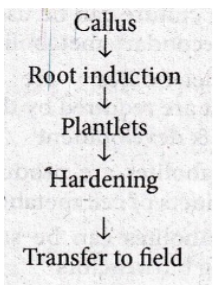
42) Which one of the following is a correct set?

(a) Vincristine - Cinchona officinalis - Anti carcinogen (b) Capsacin - catharanthus roseus - Antimalarial

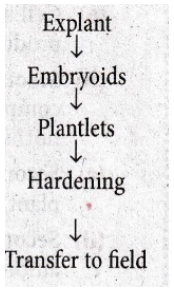
(c) Digoxin - Digitalis purpuria - Cardiac tonic (d) Codeine - Capsicum annllm - Analgesic

43) which one of the following is the correct steps in the direct embryogenesis?

(a)



(b)



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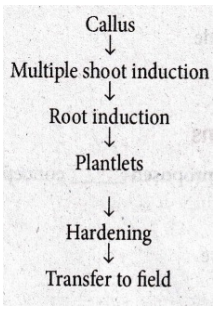
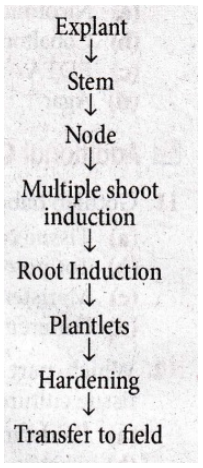


(d)



44) Cellular totipotency was demonstrated by

(a) Theodore Schwann (b) A.V Leeuwenhoek **(c) F.C. Steward** (d) Robert Hooke

45) Tissue culture technique can produce infinite number of new plants from a small parental tissue. The economic importance of the technique is raising

(a) genetically uniform population identical to the original Parent. (b) homozygous diploid Plants (c) new species

(d) variants through picking up somaclonal variations

46) Somaclones are obtained by

(a) Plant breeding (b) Irradiation (c) genetic engineering **(d) tissue culture**

47) The technique of obtaining large number plantlets by tissue culture mother is called

(a) Plantlet culture (b) Organ culture **(c) Micropropagation** (d) Macropropagation

48) A plant hormone used for inducing morphogenesis in plant tissue culture is

(a) Cytokinins (b) Ethylene (c) Abscisic acid (d) Gibberellins

49) The technique of obtaining large number of plantlets by tissue culture method is called

(a) plantlet culture (b) organ culture **(c) Micropropagation** (d) Macropropagation

50) Breeding of crops with high levels of minerals, vitamins and proteins is called

(a) Micropropagation (b) Somatic hybridization **(c) Biofortification** (d) Biomagnification