BIOLOGY

BOOKS - ARIHANT NEET BIOLOGY (HINGLISH)

PLANT BREEDING AND TISSUE CULTURE

Check Point 20 1

1. An objective of plant breeding is

A. to produce low yielding crop

B. to decrease responsivenesss to ferilisers in crops

C. to produce disease and insect resistant crops

D. None of these

Answer: C

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2. Which plant species contains a neurotoxin named $B\eta$-N-oxalyl amine alanine?

A. Lathyrus sativus

B. Pisum sativum

C. Solanum

D. Both (a) and (c)

Answer: A

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3. The period of green revolution in India was between

A. 1900-2000

B. 1930-1940

C. 1960-1970

D. 1950-1960

Answer: C

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4. Thesemidwarf wheat varieties developed by NE Borlaug are

A. Photoinsensitive

B. Lodging resistant

C. fertiliser responsive

D. All of these

Answer: D

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5. Norion 10 produced by crossing between

A. Daruma x Fultz

B. Fultz-Daruma x Turkey Red

C. Gainless x Locals of Japan

D. Locals x Gainless

Answer: B

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6. The semidwarf wheat varieties introduced by ICAR in 1963 are

A. Sonalika

B. Kalyan Sona

C. IR-8

D. Both (a) and (b)

Answer: D

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7. A dwarfing gene model in Taiwan in rice variety, is which led to production of IR-8 variety is

A. dee-geo-woo-gen

B. TN-1

C. Norion 10

D. IR-24

Answer: A

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8. Which of the following is the first fertiliser responsive hybrid variety of rice?

A. TN-1

B. IR-36

C. Jaya

D. Kalyan Sona

Answer: A

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9. Which of the following is/are semidwant rice variety?

A. Jaya

B. Noriin 10

C. Ratna

D. Both (a) and (c)

Answer: C

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10. Saccharum barberi is grown in

A. North India

B. South India

C. West India

D. None of these

Answer: A

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Check Point 20 2

1. The entire collection of plants/seeds having all the diverse allelles for all genes in a given crop in called:

A. gene pool

B. genome

C. germplasm collection

D. None of these

Answer: C

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2. A plant introduced from a different country is known as

A. exotic species

B. native species

C. Indigenous species

D. Both (a) and (c)

Answer: A

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3. Which of the following is a variety produced as a result of secondary introduction is

A. Lerma Roja

B. IR-36

C. TN-1

D. All of these

Answer: D

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4. The high yielding wheat varieties produced as a result of secondary introduction is

A. TN-28

B. Sonalika

C. PV-14

D. None of these

Answer: B

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5. The oldest plant breeding method is

A. introduction

B. selection

C. hybridisation

D. mutation breeding

Answer: B

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6. A method of selection useful for self-pollinatd plants is

A. random selection

B. pureline selection

C. progeny selection

D. mass selection

Answer: B

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7. The term pureline is used for

A. homozygous plants

B. heteroxzygous plants

C. self-pollinated plants

D. Both (a) and (c)

Answer: D

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8. The variety of wheat improved by pureline selection is

A. NP-6

B. HC-1

C. TMV-3

D. HC-6

Answer: A

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9. The genes for resistance located in wild species can be brought into single hybrid individual via.....

A. selection

B. intervarietal hybridisation

C. interspecific hybridisation

D. Both (a) and (c)

Answer: C

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10. Emasculation is

A. removal of stamens

B. removal of anthers

C. killing of pollen grains

D. All of these

Answer: D

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11. Bagging is done to

A. achieve desired pollination

B. prevent contamination of unwanted pollen

C. avoid ferilisation

D. Both (a) and (b)

Answer: B

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12. Another name of hybrid vigour is

A. heterosis

B. aberration

C. male sterility

D. hybridisation

Answer: A

13. Polyploidy involves

A. increase in chromosomes number

B. decreases in chromosomes number

C. increases in number of genome sets

D. None of the above

Answer: C

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14. Which of the following is a chemical mutagen?

A. Nitrous acid

B. Hydrazine

C. Maleic hydrazide

D. All of these

Answer: D

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15. Evaluation of hybrid cultivars in India is carried out by

A. IRRI

B. ICAR

C. NSC

D. DRDO

Answer: B

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Check Point 20 3

1. Development of a diseases requires interactions of

A. host genotype

B. environment

C. pathogen genotype

D. All of these

Answer: D

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2. Pusa swarnim a variety of Brassica resistant to

A. white rust

B. leaf strip

C. soft rot

D. blight

Answer: A

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3. Which of the following is a bacterial blight resistant variety of cowpea?

A. Pusa Shubra

B. Himgiri

C. Pusa Komal

D. Pusa Swamin

Answer: C

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4. leaf and stripe rust resistant Himgiri is a variety of

A. wheat

B. rice

C. barley

D. maize

Answer: A

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5. Smooth leaved and nectar less cotton varieties do not attract which one of following pests

A. bollworms

B. jassids

C. leaf beetle

D. aphids

Answer: A

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6. Which of the following is a strategy to resist maize stem borers?

A. High aspartic acid

B. High sugar content

C. Low nitrogen

D. All of these

Answer: D

Watch Video Solution

7. Pusa Gaurav is Brassica vareity resistant to

A. aphids

B. fruit borers

C. shoot borers

D. jassids

Answer: A

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8. Pusa Sawani is a fruit borer resistant variety of

A. okra

B. maize

C. wheat

D. apple

Answer: A

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9. The lysine rich maize hybrids are

A. Himgiri and Pusa Komal

B. Shakti and Ratna

C. Himgiri and Ratna

D. Pusa Komal and Shakti

Answer: B

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10. A protein rich wheat variety is

A. HN--10

B. IR-8

C. TN-1

D. Atlas-66

Answer: D

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11. IARI is situated at

A. New Delhi

B. Lucknow

C. Cuttack

D. Hyderabad

Answer: A

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12. Expand SCP

A. Single cell protein

B. suspension culture protein

C. singlc culture protein

D. None of these

Answer: A

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13. Single cell protein is obtained from

A. plants

B. animals microbes

C. Protozoa

D.

Answer: C

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14. Spirulina grows on

A. animal manure

B. sewage

C. starch containing susbtratum

D. All of the above

Answer: D

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15. 250 g of Methylophilus may proude _____ tonnes of

A. 25

B. 10

C. 80

D. 100

Answer: A

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Check Point 20 4

1. The cellular characteristic on which the technique of tissue culture is based on

A. totipotency

B. photosynthesis

C. dedifferentiation

D. None of these

Answer: A

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2. Requirements of plant tissue culture are

A. explant

B. nutrient media

C. sterilisation

D. All of these

Answer: D

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3. The nutrient medium without growth hormones is known as

A. basal medium

B. incomplete media

C. complete media

D. full media

Answer: A

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4. The procedure of sterilisation of explaint by antimicrobial chemicals is known

A. surface sterilisation

B. complete sterilisation

C. explaint heating

D. disinfection

Answer: A

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5. An amophous mass of thin-walled cells is called as

A. callus

B. suspension

C. somatic embryo

D. androgenic

Answer: A

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6. The technique by which an embryo of interspecific hybride recovered is

A. embryo rescue

B. somatic embryogenesis

C. meristem culture

D. callius culture

Answer: A

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7. Who developed the technique of haploid culture?

A. Guha and Maheshwari

B. Haberlandt

C. NE Borlaug

D. MS Swaminathan

Answer: A

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8. Who obtained the first somatic hybrid?

A. Carlson

B. Hberlandt

C. William Gaud

D. None of these

Answer: A

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9. The process of formation of shoots in a culture is known as

A. rihzogenesis

B. caulogenesis

C. embryogenesis

D. androgenic culture

Answer: B

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10. Micropropagation is widely used in

A. forestry

B. prevention of endangered species

C. floriculture

D. All of the above

Answer: D

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Chapter Exercises Taking It Together

1. Progeny obtained as a result of repeated self-pollination of a cross-pollinated crop is called as

A. pureline

B. pedigree line

C. inbreed line

D. heterosis

Answer: C

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2. Which method of crop improvement can be practiced by a farmer if he is inexperienced?

A. Clonal selection

B. Mass selection

C. Pureline selection

D. Hybridisation

Answer: B

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3. Picking up plants with superior phenotype ofr fugther propagation is

A. pureline selection

B. mass selection

C. hybrid vigour

D. introduction

Answer: B

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4. In tissue culture, the nutrients which are thermolabile are sterilised by

A. Autoclave

B. Filter sterilisation

C. Steam sterilisation

D. None of these

Answer: B

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5. Norin gene' of dwarfness in wheat originated through spontaneous mutation originated through spontaneous mutation in

A. India

B. Japan

C. Mexico

D. USSR

Answer: B

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6. Heterosis cannot be maintained in sexually reproducing plants as it disappears on

A. outbreading

B. inbreeding

C. cross-breeding

D. None of these

Answer: B

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7. NP-4, Kalyan Sona and S-227 wheat varieties have developed through

A. γ-ray irradiation

B. multiple crossing

C. selection

D. genetic engineering

Answer: C

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8. Exchange of germplasm is carried out preferably through shoot tip culture because they are

A. less costly

B. virus-free

C. small and handy

D. genetically stable

Answer: B

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9. Crosses between, the plants of the same variety are called

A. interspecific

B. intervarietal

C. intravarietal

D. intergeneric

Answer: C

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10. The first cultivated wheat was

A. Triticum speltoides

B. T. monococcum

C. T. boeoticum

D. T. tauschi

Answer: B

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11. Hybridisation through protoplast fusion is called

A. crossing over

B. emasulation

C. asexual hybridisation

D. somatic hybridisation

Answer: D

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12. Best varieties of sugarbeet are

A. tetraploids

B. diploids

C. triploids

D. allopolyploids

Answer: C

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13. Main varieties of potato are

A. tetraploids

B. triploids

C. aneuploids

D. diploids

Answer: A

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14. The method most useful for improving potato plant is

A. pureline

B. inbreed line

C. mass selection

D. clonal selection

Answer: D

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15. Bombay green banana is a result of

A. hybridisation

B. pureline selection

C. mass selection

D. clonal selection

Answer: D

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16. Newly introduced plants from other place of country can be tested in

A. greenhouse

B. quarantine

C. autoclave

D. All of these

Answer: B

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17. Cryopreservation refers to

A. breeding with wild varieties

B. tissue culture

C. low temperature treatment

D. reduction in moisture

Answer: C

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18. Bread wheat is

A. autopolyloid

B. allopolyploid

C. aneuploids

D. trisomic

Answer: B

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19. Seedless watermelon is

A. hexaploid

B. tetraploid

C. triploid

D. pentaploid

Answer: C

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20. Androgenic haploid culture was first performed by

A. Guha and Maheshwari

B. Steward

C. Skoog and Miller

D. Halperin and Wethereli

Answer: A

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21. Improved Indian variety of wheat, carrying genes of dwarfness and higher percentage of protein and lysine is

Or

Which was first Indian dwarf amber gained variety of wheat made from Sonara 64 by γ-rays (gamma rays)

A. Kalyan

B. Sonalika

C. Lerma Roja

D. Sharbati Sonara

Answer: D

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22. RR-21 is a high yeilding variety of

A. rice

B. wheat

C. gram

D. sugarcane

Answer: B

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23. Importing better varieties and plants from outside and acclimating them to local environment is called

A. cloning

B. heterosis

C. selection

D. introduction

Answer: D

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24. Dwarfing gene of wheat is

A. Pal 1

B. Atomita 1

C. Norin 10

D. Pelita 2

Answer: C

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25. Which one belongs to old world?

A. Squash

B. Pumpkin

C. Mango

D. Guava

Answer: C

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26. Which of the following is most commonly used for creation of genetic variation ?

A. Polyploidy

B. Hybridisation

C. Mutation

D. genetic engineering

Answer: B

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27. Purity of seed is guranteed by

A. ICAR

B. NBPGR

C. National Seed Corporation

D. All of the above

Answer: C

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28. Most cultivated plants are

A. autopolyloid

B. allopolyploid

C. aneuploids

D. haploids

Answer: B

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29. Haploid plantlets can be produced by

A. pollen culture

B. cotyledon culture

C. embryo culture

D. meristem culture

Answer: A

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30. In tissue culture medium, the embryoids formed from pollen grains is due to

A. cellular totipotency

B. organogenesis

C. double fertilisation

D. test tube culture

Answer: A

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31. Pureline breeds show

A. homozygosity and independent assortment

B. homozygosity only

C. heterozygosity only

D. heterozygosity and linkage

Answer: A

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32. In which crops is the method of mass selection applied

A. Cross-pollinated

B. Self-pollinated

C. Both (a) and (b)

D. Potato and Sugarcane

Answer: C

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33. The dividing and undifferentiated cells are known as

A. Callus

B. proembryo

C. embryo

D. primordium

Answer: A

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34. Dharwar American Variety of cotton is the product of

A. mass selection

B. mutual breeding

C. clonal selection

D. parasexual hybridiation

Answer: D

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35. Plants having similar genotypes produced by plant breeding are called

A. clone

B. haploid

C. autopolyploid

D. genome

Answer: A

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36. Central Sugarcane Breeding Research Institute is situated at

A. Lucknow

B. Delhi

C. Coimbatore

D. Bhopal

Answer: C

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37. Central Rice Research Institute is located at

A. Odisha

B. Cuttak

C. Bhopal

D. Shimla

Answer: B

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38. In India, the first hapllid plant produced by using anther culture technique was

A. Datura

B. mango

C. atropdia

D. reserpine

Answer: A

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39. The main technique involved in agricultural biotechnology is called :

A. tissue culture

B. transformation

C. plant breeding

D. DNA replication

Answer: A

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40. What was the colour of high yielding Mexican wheat?

A. White

B. Pink

C. Red

D. Grey

Answer: C

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41. Culture of isolated microspores results in the formation of

A. microgametophyte

B. male gametes

C. haploid embryoids

D. heterozygous embryoids

Answer: C

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42. Desired improved varieties of economically useful crops are raised by

A. natural selection

B. hybridisation

C. mutation

D. biofertiliser

Answer: B

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43. Somatic hybridisation can be used for

A. gene transfer

B. transfer of cytoplasm

C. formation of allopolyploids

D. All of these

Answer: D

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44. In embryo culture, a young embryo develops into

A. a number of embryos

B. a plantlet

C. a number of plantlets

D. callus

Answer: B

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45. Root regenration occurs from the lower end of cultured shoots when the culture medium contains

A. ethyleen

B. ABA

C. NAA

D. zeatin

Answer: C

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46. Which technique can be helpful in over-coming hybridisation barrier

A. Shoot tip culture

B. Embryo rescue

C. Protoplast fusion

D. Both (b) and (c)

Answer: D

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47. Procedure between formation of plantlets in culture and establishment of seeding in the field is called

A. hardening

B. transgene

C. somatic transfer

D. regeneration

Answer: A

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48. Formation of an organised structure from tissue culture is called

A. regeneration

B. hardening

C. cloning

D. All of these

Answer: A

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49. Regeneration in tissue culture represents formation of

A. root

B. root and shoot

C. somatic embryos

D. All of these

Answer: D

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50. Which is faster method of rapid clonal propagation?

A. Callus culture

B. Suspension culture

C. Embryo culture

D. Anther culture

Answer: B

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51. Haploid plant cultures are got from

A. leaves

B. root tip

C. pollen grain

D. buds

Answer: C

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52. In tissue/ bacterial culture glassware and nutrients are sterilized through

A. water bath at 200° C

B. dry air over at 200° C

C. dehumidifier

D. autoclave

Answer: D

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53. Technique for production of disease-free plants

A. Clonal culture

B. tissue culture

C. polyploidy

D. hybridisation

Answer: B

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54. Somatic hybridisation is achieved through ?

A. grafting

B. protoplast fusion

C. conjugation

D. recombinant DNA technology

Answer: B

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55. Part of plant used for culturing is called

A. scion

B. explant

C. stock

D. callus

Answer: B

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56. Tissue culture technique was first attempted by

A. Haberlandit

B. Hanning

C. Hobecourt

D. Gautheret

Answer: A

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57. Differentiation of callus into plant parts is

A. embryogenesis

B. embryoid formation

C. morphogenesis

D. totipotency

Answer: C

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58. Who discovered that morphogenesis in culture medium is controlled by hormones

A. Muller et. Al.

B. Vasil and Hildebrandt

C. Skoog and Miller

D. Halperin and Wethereli

Answer: C

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59. The auxin commonly used in tissue culture is

A. IAA

B. 2,4-D

C. NAA

D. Both (b) and (c)

Answer: B

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60. The casual organisms of different type of plant disease are

A. bacteria

B. fungi

C. viruses

D. All of these

Answer: D

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61. Any disturbance in the normal functioning of an organism is known as

A. infection

B. disease

C. Both (a) and (b)

D. incubation

Answer: C

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62. Variations present among plant cells during tissue culture is known as

A. somaclonal variations

B. parental variations

C. intervariations

D. intravariations

Answer: A

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63. The formation of complete organism from a single somatic cell is known as

A. cellular totipotency

B. growth

C. enlargement

D. development

Answer: A

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64. Differentiation of callus cells was first shown by

A. Skoog and Miller

B. Steward

C. White

D. Guha and Maheshwari

Answer: A

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65. Tissue culture was discovered by Haberlandt (1902). Who was first to raise and maintain culture of tomato roots for over 30 years?

A. Muir

B. Skoog and Miller

C. White

D. Guha and Maheshwari

Answer: C

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66. Callus was first raised by

A. White

B. Gautheret

C. Nobe Court

D. All of these

Answer: D

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67. Tissue culture technique is being used in the production of chemical substances such as

A. gums

B. latex

C. vitamin

D. All of these

Answer: D

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68. Induced fusion of protoplasts is brought by the treatment of

A. sodium nitrate

B. calcium ions

C. polyethylene glycol

D. All of these

Answer: D

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69. The major constituents of a plant tissue culture medium are

A. inorganic nutrients

B. organic nutrients

C. growth hormotes

D. All of these

Answer: D

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70. The main growth hormones which constitute the plant tissue culture medium are

A. auxin

B. gibberelline

C. cytokinin

D. All of these

Answer: D

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71. The organic nutrients of a plant tissue culture medium are

A. sucrose

B. glucose

C. fructose

D. All of these

Answer: D

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72. Embryo-like structures produced in tissue culture is called

A. embryoid

B. zygote

C. somatic hybrid

D. hybrid

Answer: A

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73. A progeny that has resulted due to a cross between two geneticlly unrelated parents is known as

A. hybrid

B. variety

C. species

D. None of these

Answer: A

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74. The hybrid variety is

A. parental generation

B. F_1-generation

C. sterile

D. fertile

Answer: B

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75. The chemical which causes the doubling of chromosomes in haploids is known as

A. methylene

B. benzene

C. colchicine

D. None of these

Answer: C

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76. Heterosis lost due to inbreeding is known as

A. outbreeding depression

B. inbreeding depression

C. hybrid vigour

D. None of these

Answer: B

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77. Two methods of selection in plants are

A. mass selection

B. pureline selection

C. Both (a) and (b)

D. Hybridisation

Answer: C

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78. In which of the following crops has autopolyploidy been reported?

A. Tomato

B. Potato

C. Beans

D. Mango

Answer: C

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79. The hybrid varieties of wheat are

A. Gourani

B. High gate

C. Both (a) and (b)

D. NP-170

Answer: D

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80. In vegetatively propogated plants, pathogens are transmitted through

A. root

B. tuber

C. bulb

D. All of these

Answer: D

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81. The multiple shootlet production technique is used to get disease-free healthy plants of

A. potato

B. cassava

C. sugarcane

D. All of these

Answer: D

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82. The methods of crop improvements are

A. induced mutations

B. induced polyploidy

C. hybridisation

D. All of these

Answer: D

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83. Which variety of wheat is known as macaroni wheat?

A. Triticum durum

B. Triticum vulgaro

C. T.aestivum

D. None of these

Answer: B

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84. Hybridisation process performed between more than two plants is known as

A. single cross

B. multiple cross

C. dihybrid cross

D. integeneric cross

Answer: B

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85. The rice variety developed as a result of intergeneric cross is

A. ADT-37

B. BDT-50

C. C-306

D. None of these

Answer: D

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86. Tissue culture is employed for the productionof

A. virus-free plants

B. haploid plants

C. interspecific hybrids

D. All of these

Answer: D

Watch Video Solution

87. First somatic hybrid was produced by

A. Carlson and coworkers

B. Skoog and coworkers

C. Cocking and coworkers

D. Gamburg and coworkers

Answer: A

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88. Auxin and cytokinin are used in tissue culture to control

A. root and shoot growth

B. leaf development

C. fruit development

D. biotransformation

Answer: A

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89. Which of the following technique is used to recover interspecific hybrids?

A. Anther culture

B. Meristem culture

C. Embryo culture

D. Pollen culture

Answer: C

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90. Father of plant tissue culture is

A. Kary Mullis

B. Prof. VL Chopra

C. G Haberlandt

D. RJ Gautherest

Answer: C

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91. Which of the following are propogated by micropropagation?

A. Banana

B. Wheat

C. Grape

D. Both (a) and (c)

Answer: D

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92. Which blue-green algate is used as food?

A. Spirulina

B. Anabaena

C. Nostoc

D. Phormidium

Answer: A

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93. An artificial seed is raised from

A. meristem

B. root tip

C. somatic embryo

D. immature seed

Answer: D

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94. The scientific process by which crop plants are enriched with certain desirable nutrients is called

A. crop protection

B. breeding

C. biofertilisation

D. bioremediation

Answer: C

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95. Which one of the following is not a fungal disease ?

A. Rust of wheat

B. Smut of bajra

C. Black rot of crucifers

D. Red rot of sugarcane

Answer: C

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96. Use of certain chemicals and radiation to change the seed base sequences

A. recombinant DNA technology

B. transgenic mechanism

C. mutation breeding

D. gene therapy

Answer: C

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97. The scientific process by which crop plants are enriched with certain desirable nutrients is called

A. crop protection

B. breeding

C. biofortification

D. bioremediation

Answer: C

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98. 33 percent of India's (Gross Domestics Product) comes from

A. industry

B. agriculture

C. export

D. small-scale cottage industries

Answer: B

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99. A collection of all the alleles of all the genes of a crop plant is called

A. germplasm collection

B. protoplasm collection

C. herbarism

D. somaclonal collection

Answer: A

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100. An explant is

A. dead plant

B. part of the plant

C. part of the plant used in tissue culture

D. part of the plant that expresses a specific gene

Answer: C

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101. Lysine and tryptophan are

A. proteins

B. non-essential amion acids

C. essential amino acids

D. aromatic amino acids

Answer: C

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102. The technique involving the isolation and fusion of protoplasts are culturing the hybrid protoplast to regenerate the whole plant, is known as

A. parasexual hybridisation

B. genetic engineering

C. protplast culture

D. androgenic haploids

Answer: C

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103. The most convenient way of maintaining germplasm is

A. to raise tissue culture

B. by developing new varieties

C. by storing seeds

D. to treat plant by low temperature

Answer: C

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104. In an economically important plant species, embryo mortality is very high. What

method to you suggest to check the mortality rate?

A. Embryo culture

B. Meristem culture

C. Micropropagation

D. Polyploid mutation

Answer: A

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105. Triploids are said to be more useful than other polyploids because these are

A. seedless and are always propogated by stem cuttings

B. produced when definitely nucleus fuses with a male gamete.

C. sterile and show increased vigour

D. fertile and more healthy

Answer: A

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106. Pusa Lerma and Sharbati Sonara are

A. introduced Mexican varieties

B. mutants of Mexican varities

C. mutants of Indian varieties

D. Indian varieties improved through hybridisation with introduced varieties.

Answer: B

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107. IR-36 was developed through breeding of

A. 6 rice varieties with Oryza sativa

B. 13 rice varieties with Oryza sativa

C. Oryza sativa and Oryza indica

D. Oryza indica and Oryza nivara

Answer: D

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108. The three topmost major crops of the world in the order of total production are

A. Wheat $>$ rice $>$ maize

B. rice $>$ wheat $>$ maize

C. wheat $>$ maize $>$ rice

D. rice $>$ maize $>$ wheat

Answer: A

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109. Pusa RH-10 is

A. long and scented grained variety of rice

B. lysine rich and amber coloured wheat variety

C. long stapled coloured variety of cotton

D. high yielding varity of sunflower

Answer: A

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110. The best way to obtain bacteria and viruses free plants through tissue culture is

A. micropropogation

B. seed germinination after gamma irradiation

C. stem or shoot tip culture

D. seed germination under aseptic condition.

Answer: A

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111. Improved variestes of wheat suitable for indian climates have been delveloped by

A. hybridisation and mutation

B. mutation and cloning

C. cloning of polyploids

D. polyploidy and hybridisation

Answer: A

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112. Hybrid vigour is due to

A. heterozygosity

B. superiority of all the genes

C. homozygosity of pure characters

D. mixing up of cytoplasm of themale with that of the female exclusively.

Answer: A

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113. Aseptic culture means

A. absence of life

B. presence of bacteria

C. absence of other organism like microbes

D. parthenogenetic development

Answer: C

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114. Single cell protein (SCP) is

A. protein obtained from a clone of cells

B. protein obtained from unicellular organisms

C. biomass got from microorganisms

D. proteins obtained from biomass of microorganisms

Answer: B

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115. SCP is commercially obtained at present from

A. yeast and Fusarium fungi

B. Morchella and Agaricus

C. Methanomonas and other bacteria

D. Chlorella and Spirulina

Answer: D

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116. Embryo culture is used for :

A. establishing suspension culture

B. recovery of interspecific hybrids

C. somatic hybridisation

D. haploid production

Answer: B

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117. Hardening is induced by keeping plantlets under

A. high light intensity and low humidity

B. low light intensity and low humidity.

C. low light intensity and high humidity

D. high light intensity and high humidity.

Answer: C

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118. Characteristic of suspension culture is

A. liquid medium

B. agitation of liquid medium

C. single cells or small groups of cells

D. All of the above

Answer: D

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119. Somaclonal variations are the ones.

A. caused by mutagens

B. produced during tissue culture

C. induced during sexual embryogeny

D. caused by gamma rays

Answer: B

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120. Which one is required for protoplast fusion ?

A. Treatment with cellulase and pectinase

B. Electrofusion of PEG treatment

C. Both (a) and (b)

D. Recombinant DNA technology

Answer: C

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121. Callus formation is promoted by

A. proper light and subculturing

B. darkness and subculturing

C. excess of NAA

D. absence of salts

Answer: B

Watch Video Solution

122. PEG (Polyethylene Glycol) is used for

A. fusion of protoplasts of two different cells

B. fusion of gametes

C. fusion of cells of different species

D. callus formation

Answer: A

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123. In making a medium for culturing, agar is added because

A. agar soldifies the medium

B. agar is a good nutrient

C. agar does not allow callus formation

D. agar does not melt easily to 50° C

Answer: A

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124. In tissue culture why does culture medium contain sugar?

A. Green cells lost chloroplast

B. Green cells require energy to divide

C. Sugar maintains pH and does not allow cells to burst

D. All the above

Answer: D

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125. Which one of the following statements regarding pomato is correct?

A. It is a product of somatic hybridisation.

B. It is a product of gene manipulation

C. Product of sexual hybridisation

D. Product of cloning

Answer: A

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126. Hybrid vigour is best maintained in crops by

A. emasulation

B. vegetatively propogation crops

C. outbreeding

D. None of these

Answer: C

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127. Rice variety named ADT-37 is formed as a result of cross between

A. Oryza japonica $\times$ O. indices

B. Oryza astevium $\times$ O. vulgare

C. Oryza sativa $\times$ O. japonica

D. None of the above

Answer: A

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128. A cybrid is hybrid carrying

A. genomes and cytoplast of two different plants

B. cytoplasm of two different plants

C. cytoplasms of two dfferent plants, but genome of one plant

D. genome of two different plants

Answer: C

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129. The reason for vegetatively reproducing crop plants for maintaining hybrid vigour is that

A. these can be easily propogaged

B. once a desired hybrid has been produced there are few chances of losing it

C. they have a longer lifespan

D. they are more resistant to disease

Answer: B

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130. The reason why some mutations which are harmful do not get eliminated from gene pool is that :

A. they have future survival value

B. they are recessive and carried by heterozygoous individuals

C. they are dominant and show up more frequently

D. genetic drift occurs because of a small population

Answer: B

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131. Which one of the following pairs is correclty matched?

A. Inbreeding - Cross-pollination

B. Hyrbrid vigour - Maintained due to inbreeding depression

C. Male sterility- Self-pollination

D. Triticum boeticum - First domesticated wheat

Answer: D

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132. In Tobacco callus, which one shall induce shoot differentiation in combination of auxin and cytokinin

A. higher concentration of cytokinin and lower concentration of auxin

B. lower concentration of cytokinin and higher concentration of auxin

C. only cytokinin and no auxin

D. only auxin and no cytokinin

Answer: A

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133. Tissue culture technique can produce indefinite number of new plants from a small parental tissue. The economic importance of the technique is in raising

A. variants through picking up somaclonal variations

B. genetically uniform population of an elite species

C. homozyous diploid plants

D. development of new species.

Answer: D

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134. In callus culture, roots can be induced by the supply of

A. auxin and no cytokinin

B. higher concentration of auxin and lower concentration of cytokinin

C. higher concentration of cytokinin and lower concentration of auxin

D. both auxin and cytokinin in equal properties.

Answer: B

 Watch Video Solution

135. Hardening in tissue culture is

A. keeping at 30-50° temperature for about 30 min

B. acclimation of plants slowly for about 30 min

C. acclimatisation of plants slowly before growingin the field

D. plunging the vials into water at 37-40° C

Answer: C

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136. Select the incorrect statement:

A. Pectinase and cellulase dissolve the cell wall.

B. Some cyanobacteria form symbolic association with the fern Azolla.

C. Regeneration of cell wall in somatic hybridisation induced by PEG

D. Plants obtained through pollen culture are always haploids.

Answer: B

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137. Fungicides and antibiotics are chemicals that

A. enhance yield and disease resistance

B. kill pathogenic fungi and bacteria, respectivley

C. kill all pathogenic microbes

D. kill pathogenic bacteria and fungi, respectively

Answer: A

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138. The biggest constraint of plant breeding is

A. availability of desirable gene in the crop and its wild relatives

B. infrastructure

C. trained manpower

D. transfer of genes from unrelated sources

Answer: C

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139. Several South Indian states raise 2-3 crops of rice annually. The agronomic feature that makes this possible is because of

A. shorter rice plant

B. better irrigation facilities

C. early yielding rice variety

D. disease resistant rice variety

Answer: C

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140. In virus-infected plants the meristematic tissues in both apical and axillary buds are free of virus because

A. the dividing cells are virus resistant

B. meristem have antiviral compounds

C. the cell division of meristem are faster than the rate of viral multiplication

D. viruses cannot multiply within meristm cells(s)

Answer: A

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141. Which one of the following combination would a sugarcane farmer look for in the sugarcane crop

A. Thick stem,long intermodes, high sugar content and disease resistant

B. Thick stem, high sugar content and profuse flowering

C. Thick stem, short inernodes, high sugar content, disease resistant

D. Thick stem, low sugar content and disease resistant

Answer: D

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142. What is the basis of tissue culture technique that enables the cloning of plants?

A. Plant cells have a rigid cell wall that increases their ability to divide.

B. Plants have no resistance to pathogens, so they need to be grow in sterile conditions

C. Plant cells are pluripotent

D. Plant cells are totipotent

Answer: A

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143. The term 'totipotency' refers to the capacity of a

A. cell to generate whole plant

B. bud to generate whole plant

C. seed to germinate

D. cell to enlarge in size

Answer: A

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Medical Entrances Special Format Questions Statement Based Questions

1. Among the following statements, which one represents top cross?

(I) Inbreed variety cross.

(II) Polycross.

(III) Cross between an inbreed line and an

open pollinated variety.

(IV) Cross between a single crosss and inbreed line.

Choose the correct option.

A. I, II and III

B. I and II

C. II and IV

D. I and III

Answer: D

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2. Choose the composite varieties of maize, developed in India.

(I) Protina

(II) Shakti

(III) Ratna

(IV) Pusa 24

A. I,II and III

B. I and II

C. Only IV

D. I and IV

Answer: A

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3. Consider the given statements.

(I) The term heterosis was first used by shull.

(II) Colchicine is used to induce polyploids.

(III) India has developed largest number of mutant plant varieties.

(IV) The process of tissue culture is based on totipotency.

A. I and II

B. I, II and III

C. I, III and IV

D. I, II and IV

Answer: D

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4. Consider the following statements which of them are the advantages of tissue culture/microprogation

(I) A large number of plants can be growin in short time.

(II) Disease-free plants can be developed from diseased plants.

(III) Seedless plants can be multiplied.

(IV) Somatic plants can be raised by tissue culture, where sexual hybridisation is not possible.

A. I, II and III

B. II, III and IV

C. I, II and IV

D. I, II, III and IV

Answer: A

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5. Given below are a few statements regarding somatic hybridisation. Choose the correct statements.

(i) Protoplasts of different cells of the same plant are fused.

(ii) Protoplasts from cells of different species

can fused.

(iii) Treatment of cell with cellulase and pectinase mandatory.

(iv) The hybrid protoplast contains characters of only one parential protoplast.

A. I and II

B. I and III

C. I and IV

D. III and IV

Answer: D

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6. Norman borlaug is associated with

A. green revolution

B. yellow revolution

C. white revolution

D. blue revolution

Answer: A

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7. Find out the correct statement:

A. Monosomy and nullisomy are the two types of euploidy

B. Polyploidy is more common in animals than in plants

C. Polyploids occur due to the failure in complete separations of set of chromosomes

D. 2n-1 conditions results in trisomy

Answer: C

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Match The Columns

1. Match the following Columns.

	Column I		Column II
A.	Oldest cereal crop	1.	Banana
B.	Tallest cereal	2.	Barley
C.	Gossypol	3.	Male antifertility chemical present in cotton and its oil
D.	Oldest cultivated crop of the world	4.	Maize

A. A-2,B-1, C-4, D-3

B. A,2,B-4,C-3,D-1

C. A-1,B-3, C-4,D-2

D. A-3,B-1,C-2,D-4

Answer: B

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2. Match the following Columns.

	Column I		Column II
A.	Emasculation	1.	Mass production
B.	Micropropagation	2.	Polyploidy
C.	Colchicine	3.	Anther removal
D.	Mutation	4.	X-rays

A. A-2,B-3,C-1,D-4

B. A-4,B-2,C-3,D-1

C. A-1,B-2,C-4,D-3

D. A-3,B-1,C-2,D-4

Answer: D

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Assertion And Reason

1. Assertion: Genetic variations provide raw material for selection.

Reason: Genetic variations are differences in genotypes of the individuals.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

 Watch Video Solution

2. Assertion: Hybridisation is mating between two or more different lines.

Reason: Hybridisation is not a common method of creating genetic variation.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: C

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3. Assertion: Interspecific hybrids are important in breeding for disease resistance.

Reason: All the sugarcane varieites being cultivated today for diseases resistance.

Reason: All the sugarcane varieties being cultivated today are interspecific hybrids.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

View Text Solution

4. Assertion: HUW-486 wheat variety is self-pollinated.

Reason: Pollen from a flower, lands on the stigma of the same flower is known as self-pollination.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of

Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: A

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5. Assertion: Decreases in heterozygosity reduces the performance of cross-pollinated crops.

Reason: Decrease in heterozygosity enhances the performance of self-pollinated crops.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: C

 Watch Video Solution

6. Assertion: Variations present in pureline is due to environment.

Reason: Pureline have identical genotype.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: A

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7. Assertion: Maize is completeley dependent on human beings for their survival.

Reason: Maize cannot survive in wild.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: A

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8. Assertion: Mass selection is useful in self-pollinated plants.

Reason: Self-pollinated plants are homozygous which retain the selected traits in the progeny.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: A

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9. Assertion: Pureline selection is a modern day technique of plant selection.

Reason: Pureline selection involves obtaining good characters in homozygous state.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of

Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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10. Assertion: Hybridisation is involved in the production of hybrid vigour or heterosis.

Reason: Hybrid is obtained by crossing the selected inbreed lines.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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11. Assertion: The removal of male of a hermaphrodite flowers is called emasulation.

Reason: Emasculation is easy in case of large sized flowers.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of

Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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12. Assertion: Hybrid vigour is superior over either of its parents.

Reason: Hybrid vigour is lost upon inbreeding.

A. Both Assertion and Reason are true and Reason is correct explanation of Assertion.

B. Both Assertion and Reason are true, but reason is not the correct explanation of Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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Medical Entrances Gallery Collection Of Questions Asked In Neet And Various Medical Entrance Exams

1. A cell at telophase stage is observed by a student in a plant brought from a field. He tells his teacher that this cell is not like other cells at telophase stage. There is no formation of cell plate and thus the cell containing more number of chromosomes as compared to other dividing cells. This would result in

A. polyploidy

B. somaclonal variation

C. polyteny

D. aneuploidy

Answer: A

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2. A technique of micorpropaglantion is

A. somatic hybridisation

B. somatic embryogenesis

C. protoplast fusion

D. embryo rescue

Answer: B

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3. Which of the following enhances or induces fusion of protoplasts

A. Sodium chloride and potassium chloride

B. Polyethylene glycol and sodium nitrate

C. IAA and kinetin

D. IAA and gibberellins

Answer: B

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4. In recent years some crops were improved by various methods for higher yeild and better quality of food grains. Match the improved

varieties with the related crop.

	Column I		Column II
A.	Golden rice	1.	Cross breed hybrid
B.	IR-8 rice	2.	Somatic hybrid
C.	Himgiri wheat	3.	Semidwarf variety
D.	Pomato	4.	Genetically modified crop

A. A-4, B-1, C-2, D-3

B. A-4, B-3, C-1, D-2

C. A-2, B-4, C-1, D-3

D. A-1, B-3, C-4, D-2

Answer: B

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5. Triticale is an example of

A. autopolyploidy

B. allopolyploidy

C. aneuploidy

D. None of these

Answer: B

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6. The common bread wheat has

A. 14 chromosomes

B. 21 chromosomes

C. 28 chromosomes

D. 42 chromosomes

Answer: D

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7. In tissue culture, shoot formation in callus can be induced by

A. IAA

B. ABA

C. GA_3

D. Kinetin

Answer: D

Watch Video Solution

8. Sonalika and kalyan Sona are high yielding varieties of

A. sugarcane

B. rice

C. wheat

D. maize

Answer: C

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

A. Apical meristem only

B. Palisade parenchyma

C. Both apical and axillary meristems

D. Epidermis only

Answer: C

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10. In plant breeding programme, the entire collection (of plants/seed) having all the diverse alleles for all genes in a given crop is called

A. gene bank

B. cDNA library

C. genomic library

D. germ plasm

Answer: D

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11. Match the following Columns.

	Column I		Column II
A.	Totipotency	1.	Breeding crops with higher levels of nutrients
B.	Micropropagation	2.	Plant grown from hybrid protoplast
C.	Somaclone	3.	Producing a large number of plants through tissue culture
D.	Somatic hybrid	4.	Capacity to generate a whole plant from an explant
E.	Biofortification	5.	Plants genetically identical to original plant

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12. Genetically improved crop varieties can be developed in laboratory by

A. somaclonal variation

B. transgenic technology

C. cell suspension culture

D. All of these

Answer: A

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13. Purposeful manipulation of plant species is called

A. hybridisation

B. germplasm collection

C. plant breeding

D. conventional plant breeding

Answer: C

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14. Identify the correct pair of combinations

I. Parbhani Kranti-Resistance to Virus-Bhindi

II. Pusa Gaurav-Resistance to aphids-Mustard

III. Pusa Sadabahar- Resistance to fruit borer-Cow pea

IV. Pusa Shubhra-Resistance to white rust - Cauliflower

A. II and III

B. II and IV

C. I and II

D. I and II

Answer: C

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15. Prabhani Kranti, a variety of bhindi (lady's finger) is resistant to---

A. bacterial blight

B. yellow mosaic virus

C. black rot

D. leaf curl

Answer: B

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16. During somatic hybridisation in plants

A. somaclones are produced in large numbers

B. the apical meristems are cultured to get virut-free plants

C. the cell walls and the middle lamella digested before fusing the cells

D. crop plants with higher lavels of vitamins, proteins and minerals are hybridised.

Answer: C

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17. In plant breeding programme, the entire collection (of plants/seed) having all the diverse alleles for all genes in a given crop is called

A. cross-hybridisationi among the selected parents

B. evaluation and selection of parents

C. germplasm collection

D.

Answer: C

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18. An example for semidwarf variety of wheat is

A. IR-8

B. Sonalika

C. Triticum

D. Saccharum

Answer: B

Watch Video Solution

19. Export required for virus free culture is

A. root

B. shoot tip

C. leaf

D. leaf and root

Answer: B

Watch Video Solution

20. Himgiri developed by hybridisation and seldction for disease resistance against rust pathogens is a variey of

A. chilli

B. maize

C. sugarcane

D. wheat

Answer: D

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21. Breeding of crops with high levels of minerals vitamins and proteins called

A. somatic hybridisation

B. biofortification

C. biomagnification

D. micropropagation

Answer: B

Watch Video Solution

22. Disease resistance crop is obtained by

A. crossig with new varieties

B. crossing with wild varieties

C. injecting with organic compounds

D. None of the above

Answer: B

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23. A man made allopolypoid cereal crop is

A. Hordeum vulgare

B. Triticale

C. Raphanus brassica

D. Zen mays

Answer: B

 Watch Video Solution

24. Wonder wheat is a new wheat variety developed by

A. Mexico's International Wheat and Maize Improvement Center

B. Indian National Botanical Research Institute

C. Australian Crop Improvement Center

D. African Crop Investment Centre

Answer: A

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25. The plant of Triticum aestivum is

A. haploid

B. diploid

C. tetraploid

D. hexaploid

Answer: C

Watch Video Solution

26. Shakti, rattan and protina are three important lysine rich varieties of

A. rice

B. pulses

C. wheat

D. maize

Answer: D

 Watch Video Solution

27. Match the following Columns:

	Column I	Column II
A.	Usage of bisexual flowers as female parents	1. Clonal selection
B.	Incorporation of several desirable characters into a single variety	2. Pureline selection
C.	Exploiting hybrid vigour for many generations	3. Emasculation
D.	Improving local varieties of self-pollinated crop	4. Hybridisation
		5. Polyploidy breeding

A. A-4,B-5,C-3,D-1

B. A-2,B-3,C-4,D-5

C. A-3,B-4,C-1,D-2

D. A-1,B-5,C-2,D-4

Answer: C

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28. By which of the following methods, new and better varieties of plants can be formed?

A. Selection

B. Grafting

C. Hybridisation

D. Hybridisation followed by selection

Answer: D

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29. What name has been assigned to the genus produced by a cross between cabbage and radish

A. Secale

B. Bursa pastoris

C. Lysogenicophyll

D. Raphanobrassica

Answer: D

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30. The term heterosis was first coined by:

A. McClintock

B. Poweri

C. Swaminathan

D. None of these

Answer: D

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31. Desired improved varieties of economically useful crops are raised by

A. migration

B. biofertiliser

C. hybridisation

D. natural selection

Answer: C

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32. Emasculation is connected with:

A. hybridisation

B. clonal selection

C. mass selection

D. pureline selection

Answer: A

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33. Cross between unrelated group of organisms is called

A. hybrid

B. test cross

C. back cross

D. heterosis

Answer: A

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34. Dwarf wheat was developed by

A. MS Swaminathan

B. Vavilov

C. Dr. NE Borlaug

D. BD Singh

Answer: C

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35. First man-made cereal Triticale is

A. octaploid

B. hexaploid

C. Both (a) and (b)

D. diploid

Answer: C

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36. A hybrid where the cytoplasm of two parent cells are fused by retaining only one parental nucleus is called

A. asymmetric somatic hybrid

B. cybrid

C. an interbreed

D. symmetric somatic hybrid

Answer: B

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37. In the table given below, some of the crop plants, their diseases and the pathogens are given. Match the three columns and identify

the correct choice.

	Crop	Disease	Pathogen
A.	Pigeon pea	I. Root knot	1. *Pseudomonas*
B.	Brinjal	II. Ear cockle	2. *Fusarium*
C.	Sugarcane	III. Wilt	3. *Anguinia*
D.	Wheat	IV. Red stripe	4. *Meloidogyne*

A. A-III, B-I-4,C-IV-1,D-II-3

B. A-I-2,B-III-4,C-II-3,D-IV-3

C. A-IV-3,B-I-2,C-III-1,D-II-3

D. A-II-1,B-IV-3,C-I-2,D-III-4

Answer: A

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38. In the hexaploid wheat, the haploid (n) and basic (x) numbers of chromosomes are

A. n=7 and x=21

B. n=21 and x=21

C. n=21 and x=14

D. n=21 and x=7

Answer: D

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39. In maize, hybrid vigour is exploited by:

A. bombarding the seeds with DNA

B. crossing of two inbreed parental lines

C. harvesting seeds from the most productive plants

D. inducing mutations

Answer: B

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40. When a diploid female plant is crossed with a tetraploid male, the ploidy level of endosperm cells in the resulting seed is:

A. tetraploidy

B. pentaploidy

C. diploidy

D. triploidy

Answer: A

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41. India wheat yield revolution in the 1960s was possible primarily due to

A. hybrid seeds

B. increased chlorophyll content

C. mutations resulting in plant height reduction

D. quantiative trait mutations

Answer: C

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42. The quickest method of plant breeding is

A. introduction

B. selection

C. hybridisation

D. mutation breeding

Answer: B

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43. The plant which is used for studying hybrid vigour or heterosis is

A. maize

B. pea

C. datura

D. None of these

Answer: A

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44. Wich of the following is generally used to induce mutagenesis in crop plants?

A. Alpha particles

B. X-rays

C. UV (260 nm)

D. Gamma rays (from cobalt 60)

Answer: D

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