EXERCISE – I (Conceptual Question) Build Up your Understanding

1. Hybrids are generally-
(1) Weak (2) Strong (3) Like as parents (4) Mutants

2. Emasculation is achieved by-
(1) Removal of anther (2) Removal of stigma
(3) Removal of entire organisms (4) Removal of petals and sepals

3. In crop improvement programme haploids are of great importance, because they –
(1) Grow better under adaverse conditions
(2) Are useful in studies for meiosis
(3) Require only about half the amount of chemical fertilisers compared to diploids
(4) Give homozygous lines following diploidisation.

4. A new crop triticale has been evolved by integer throughneric hybridisation between-
(1) Wheat and Aegilops (2) Wheat and rice
(3) Rice and Maize (4) Rye and wheat

5. If a breeder has to evolve a disease resistant strain, what step will be taken first :-
(1) Hybridisation (2) Selection of parents
(3) Working out the yield (4) Looking for the subject in the library

6. Cellular totipotency is demonstrated by :-
(1) Only gymnosperm cells (2) All plant cells
(3) All eukaryotic cells (4) Only bacterial cells

7. Heterosis (Hybrid Vigor) desirable in vegetatively propagated plants, because :-
(1) Heterosis maintains longer duration
(2) These plants are easy to cultivate
(3) Vegetative reproduction help in fast multiplication
(4) It is due to homozygosity

8. Modern farmer's can increase the yield of paddy upto 50% by the use of :-
(1) Baculovirus (2) Rihizobium (3) Cyanobacteria (4) Farm yard manure

9. Somaclonal variations appears in –
(1) Organism produced through somatic hybridization
(2) Plants growing in highly polluted conditions
(3) Apomictic plants
(4) Tissue culture raised plants

10. Pomato is-
(1) Somatic hybrid (2) Allopolyploid (3) Natural mutant (4) (1) and (2) both

11. Plant part, used for culture is called –

(1) Scion (2) Stock (3) Explant (4) Callus

12. Gyanogenic haploid plants are obtained through-
(1) Anther culture (2) Ovule culture (3) Embryo culture (4) Shoot tip culture

13. Protoplast fusion causes :-
(1) Rapid growth of offspring (2) Somatic hybridization
(3) Production of useful allopolyploid (4) (2) & (3) both

14. Virus free plant can be obtained through :-
(1) Grafting (2) Callus culture (3) Shoot tip culture (4) Suspesion culture

15. Which of the following hormone is used for shoot differentiation in callus ?
(1) 2, 4-D (2) Benzyl amino purine (BAP)
(3) Deformylase (4) Gibberelic acid

16. Which of the following type of culture is used in some interspecific crosses, where endosperm of developing hybrid seed degenerates very early?
(1) Meristem culture (2) Shoot tip culture (3) Embryo culture (4) Anther culture

17. What is the root of any breeding programme
(1) Mutation (2) Green revolution (3) Genetic variability (4) Genetic similarly

18. Which tropical canes grown in south India had thicker stems and high sugar content but did not grow well in north India.
(1) Saccharum barberi (2) Saccharum spontaneum
(3) Saccharum robustum (4) Sacchrum officinarum

19. "Pusa Kamal' variety of cow pea, which developed by hybridisation and selection is mainly resistance for
(1) Powdery mildew (2) Yellow mosaic virus
(3) Bacterial blight (4) White rust

20. Read the statements carefully
(A) Wheat variety, Atlas 66 having a high protein content
(B) SCP is the Alternate sources of proteins for animal and human nutrition
(C) Plants developed by micro propagation will be genetically different to the original plant from which they were grown.
(D) Semi-dwarf rice varieties were derived from IR-8 and Taichung Native-1
Find out the correct statements
(1) A, B, C (2) C, D, A (3) B, C, D (4) A, B, D

21. In which crop resistance to yellow mosaic virus were induced by mutation
(1) Mung bean (2) Cow pea (3) Wheat (4) Brassica

22. Smooth leaved and nectar less cotton varieties do not attract which one of following pests
(1) Aphids (2) Jsssids (3) Boll worms (4) Shoot borer

23. The main steps of plant breeding programmes is given below
(A) Cross hybridisation among the selected parents
(B) Testing release and commericialisation of new cultivars
(C) Collection of variability
(D) Selection and testing of superior recombinants
(E) Evolution and selection of parents
Arrange above steps in a systematic way
(1) E → C → A → B → D (2) C → E → A → B → D
(3) C → B → A → D → B (4) E → C → A → D → B

24. In fungi plant symbiotic association, the fungus symbiont absorb which nutrient from soil and passes it to the plants
(1) Nitrogen (2) Phosphorus (3) Magnese (4) Calcium

25. Nobel laureate Norman E. Borlaug developed semi dwarf variety of
(1) Wheat (2) Sugarcane (3) Mustered (4) Chilli

26. Which one of the following is an example of somatic hybridisation
(1) Bt cotton (2) Pomato (3) Golden rice (4) All of these

27. IARI, New Delhi has released several vegetables crops that are rich in
crops that are rich in
(1) Vitamin (2) Hormone (3) Minerals (4) 1 & 3 both

28. Which plant breeding step is very tedious and time consuming
(1) Selection and testing of superior recombinants
(2) Cross hybridisation among the selected parents
(3) Collection of variability
(4) Evaluation and selection of parents

29. Consider the table given below

Crop	**Variety**	**Insect pests**
(A)	Pusa Gaurav	Aphids
Flat bean	(B)	Jassids
Okra	Pusa sawani	(C)

Which one of the following option, gives the correct fill ups for the respective blank (A to C)

A	B	C
(1) Wheat	Pusa Shubhra	Boll worms
(2) Brassica	Pusa Komal	Fruit borer
(3) Wheat	Pusa Komal	Boll worms
(4) Brassica	Pusa Sem 2	Short borer

30. Consider the following statements (A to C) each with one or two blanks
Statements
(A) The capacity to generated a whole plant from any cell/explant is called __ (i) __ .

(B) Transfer of resistance genes is achieved by __ (ii) __ between the target and the source plant followed by __ (iii) __
(C) The rice varieties IRS were developed in __ (iv) __.

Options

(1) (i) cell growth
(ii) Mutation
(iii) Selection

(2) (ii) Sexual hybridisation
(iii) Selection
(iv) India

(3) (iii) Selection
(iv) Phillippines
(i) Totipotency

(4) (iv) India
(i) Totipotency
(ii) Somatic hybridisation

31. Which vegetable crop rich in vitamin C has released by IARI. New Delhi
(1) Spinch (2) Lablab (3) Mustard (4) Carrot

32. You are a plant breader. Which trait or character that you have firstly tried to incorporate into crop plants
(1) Increase crop yield and improved quality
(2) Increase tolerance to environmental stresses
(3) Increase resistance to pathogens
(4) Increase tolerance to insect pests

33. How many percent of the population of India get employees by agriculture
(1) 82 (2) 62 (3) 17 (4) 92

34. International Rice Research Institute (lRRI) is located at :
(1) Hyderabad (India) (2) Manila (Philippines)
(3) New York (U.S.A.) (4) Tokyo (Japan)

35. Dwarf wheat was developed by firstly:
(1) M. S. Swaminathan (2) Vavilov
(3) Borlaug (4) B. D. Singh

36. Why crossing with wild relatives is beneficial/ because it helps in the transfer of gene of ?
(1) Disease resistance (2) Pest resistance
(3) Drought resistance (4) All the above

37. Hybrid vigor is due to -
(1) Chiasma (2) Linkage (3) Crossing over (4) Heterozygosity

38. In hardening process :-

(1) Plantlet is placed in reduced light and high humidity for short time
(2) Plantlet is placed in favorable conditions for log time
(3) Plantlet is transfer in new fresh medium
(4) Plantlet is placed in highlight intensity

39. The process of transferring the cell-culture from old medium to fresh culture medium is known as:-
(1) Sterilization (2) Sub culturing (3) Introduction (4) Suspension culture

40. Tissue culture is beneficial for :-
(1) Micro propagation (2) Production of disease free plants
(3) Androgenic haploid (4) All the above

ANSWER KEY

EXERCISE-I (Conceptual Question)

1.	(2)	**2.**	(1)	**3.**	(4)	**4.**	(4)	**5.**	(2)	**6.**	(2)	**7.**	(1)
8.	(3)	**9.**	(4)	**10.**	(4)	**11.**	(3)	**12.**	(2)	**13.**	(4)	**14.**	(3)
15.	(2)	**16.**	(3)	**17.**	(3)	**18.**	(4)	**19.**	(3)	**20.**	(4)	**21.**	(1)
22.	(3)	**23.**	(3)	**24.**	(2)	**25.**	(1)	**26.**	(2)	**27.**	(4)	**28.**	(2)
29.	(4)	**30.**	(3)	**31.**	(3)	**32.**	(1)	**33.**	(2)	**34.**	(2)	**35.**	(3)
36.	(4)	**37.**	(4)	**38.**	(1)	**39.**	(2)	**40.**	(4)				