

1. Pusa sem-2 is a variety of flat been which is resistant to:
(a) Jassids and aphids (b) Aphids and shoot borers
(c) Aphids and fruit borers (d) Shoot and fruit borers
2. Hairy leaves in wheat provide resistance against:
(a) Bollworms (b) Jassids
(c) Cereal leaf beetle (d) Grasshoppers
3. The method of producing thousands of plants through tissue culture is called:
(a) Totipotency (b) Micro-propagation
(c) Somatic hybridization (d) Biofortification
4. A cell at telophase stage is observed by a student in a plant brought from the 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 is containing more number of chromosomes as compared to other dividing cells. This would result in
(a) somaclonal variation
(b) polyteny
(c) aneuploidy
(d) polyploidy. (NEET-I 2016)
5. Green revolution in India occurred during
(a) 1960's
(b) 1970's
(c) 1980's
(d) 1950's. (Mains 2012)
6. "Jaya" and "Ratna" developed for green revolution in India are the varieties of
(a) maize
(b) rice
(c) wheat
(d) bajra. (2011)
7. In maize, hybrid vigour is exploited by
(a) crossing of two inbred parental lines
(b) harvesting seeds from the most productive plants
(c) inducing mutations
(d) bombarding the seeds with DNA. (2007)
8. Crop plants grown in monoculture are
(a) highly prone to pests
(b) low in yield
(c) free from intraspecific competition
(d) characterised by poor root system. (2006)
9. Triticale, the first man-made cereal crop, has been obtained by crossing wheat with
(a) barley
(b) rye
(c) pearl millet

(d) sugarcane. (2006)

10. The name of Norman Borlaug is associated with

- (a) white revolution
- (b) green revolution
- (c) yellow revolution
- (d) blue revolution. (2005)

11. Which of the following crops have been brought to India from New world?

- (a) Cashewnut, potato, rubber
- (b) Mango, tea
- (c) Tea, rubber, mango
- (d) Coffee (2002)

12. Before the European invader which vegetable was absent in India?

- (a) Potato and tomato
- (b) Shimla mirch and brinjal
- (c) Maize and chichinda
- (d) Bitter gourd (2001)

13. The new varieties of plants are produced by

- (a) introduction and mutation
- (b) selection and introduction
- (c) selection and hybridization
- (d) mutation and selection. (1999)

14. Which of the following is the New World spice, that has become an essential part of Indian cuisine?

- (a) Red pepper
- (b) Black pepper
- (c) Ginger
- (d) Cardamom (1995)

15. Haploid plants can be obtained by culturing

- (a) pollen grains
- (b) root tips
- (c) young leaves
- (d) endosperm. (1994)

16. In crop movement programme, haploids are important because they

- (a) require one half of nutrients
- (b) are helpful in study of meiosis
- (c) grow better under adverse conditions
- (d) form perfect homozygous. (1989)

17. A protoplast is a cell

- (a) undergoing division
(b) without cell wall
(c) without plasma membrane
(d) without nucleus. (2015)
18. 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 (2014)
19. Which part would be most suitable for raising virus-free plants for micropropagation ?
- (a) Bark
(b) Vascular tissue
(c) Meristem
(d) Node (2012)
20. The technique of obtaining large number of plantlets by tissue culture method is called
- (a) plantlet culture
(b) organ culture
(c) micropropagation
(d) macropropagation. (2004)
21. Which ones produce androgenic haploids in anther cultures?
- (a) Anther wall
(b) Tapetal layer of anther wall
(c) Connective tissue
(d) Young pollen grains (1990)
22. Which statement is not true about honey bees or honey bee keeping?
- (1) Bees are harmful insects for crops.
(2) Honey is a food of high nutritive value.
(3) Beewax can be used in cosmetics items.
(4) Bee keeping is not labour intensive.
23. Which is not true for inbreeding?
- (1) It increases homozygosity
(2) It is done between the animals of same breed
(3) Continuous inbreeding leads to inbreeding depression
(4) It can't be used to obtain pure lines in animals
24. Which technique is generally used to obtain a large herd size in short time?
- (1) Artificial insemination
(2) Induced breeding
(3) Multiple ovulation embryo transfer
(4) Hybridisation
25. Honey bee after discovering the new source of nectar / honey can convey this information but
- (1) Cannot convey the direction
(2) Can convey the direction by round or tail waving dance

- (3) Can convey the direction by round dance only
- (4) Can convey the direction by tail waving dance only

26. Silkworm larva spins silk from :

- (1) Inside to outside
- (2) Outside to inside
- (3) Random fashion
- (4) Anterior to posterior side

27. Three carp fishes, Catla, Labeo and Cirrhina, can be grown together in the same pond more economically as they have :

- (1) Positive interactions
- (2) Commensalism
- (3) Symbiosis
- (4) No competition for food

28. Which statement is correct-

- (1) *Apis indica* is largest wild honey bee
- (2) Wax is waste material of honey bee
- (3) V. Frish discovered the transmission methods in honey bee
- (4) Drone of honey bee is diploid

29. Primary and secondary product of apiculture are :-

- (1) Wax is primary product but Honey is secondary product
- (2) Honey is primary product but wax is secondary product
- (3) Both wax and Honey are considered as secondary product as some nutritive substances are also obtained from Honey bee which are primary product.
- (4) No criteria is set to differentiate primary and secondary product in apiculture.

30. Commercial lac is produced from –

- (1) The nest of a type of bird
- (2) The exudation of a type of insect
- (3) The scale of a type of a fish
- (4) The root of a plant

1. (a)
2. (c)
3. (b)
4. (d) : Polyploidy is the phenomenon of occurrence of more than two sets of chromosomes in the nucleus of a cell. Polyploidy is more common in plants. Polyploidy arises as a result of total non-disjunction of chromosomes during mitosis or meiosis.
5. (a) : The development and usage of several high yield varieties of wheat and rice, better irrigation facilities, fertilizer application, weed, pest and pathogen control and better agricultural management in 1960s, increased the yields per unit area. This phase is often called green revolution. In India, it was witnessed during mid 1960s. Norman E. Borlaug is known as Father of Green Revolution as he developed the semi-dwarf varieties of wheat.
6. (b) : Green Revolution was one of the major task for agricultural scientists in India to produce sufficient food for increasing population. Better yielding semi-dwarf varieties of rice, "Jaya" and "Ratna" were developed for green revolution.
7. (a) : Hybridisation or heterosis or hybrid vigour is defined as superiority of hybrid over parents. It has been commercially exploited in different commercial crops like maize, sorghum, bajra, etc. The main steps include: selection of parents, selfing of parents, emasculation, bagging, crossing of desired and selected parents and finally seed setting and harvesting.
8. (a) : Monoculture describes systems that have very low diversity. Monoculture is the destruction of a diverse ecosystem and replacement with a single species or crop. It depletes the soil, fruits and vegetables become more susceptible to pests and diseases than those grown in a diverse crop environment, thus requiring larger amount of chemical spray.
9. (b) : Triticale is the first man made cereal or crop, which has been produced by intergeneric hybridization between common wheat (*Triticum aestivum*) and European rye (*Secale cereale*) with a view to combine characters of these two parent plants. Triticale is hexaploid, i.e., $2n = 6x = 62$ (when tetraploid wheat is used) or octaploid, i.e., $2n = 8x = 56$ (when hexaploid wheat is used). Triticale or Triticosecale is not suitable for purpose of bread making due to low gluten content, but it is a good forage crop.
10. (b)
11. (a) : New world crops are those which have their center of origin as America. Cashewnut and rubber have their center of origin in Brazil and potato and tomato have center of origin in Peru. All of them have been brought to India from New World.
12. (a)
13. (c) : The new plant varieties are produced by selection and hybridization. Selection is a non-random process which leads to individuals of different genotypes being represented unequally in their progeny in later generations of a population of self propagating units. It can be natural or artificial. Hybridization is the crossing of two varieties, species or genera having desired genes by bringing together the useful characters of these into one progeny. Both these processes produce new plant varieties.
14. (a) : New World crops are those which have their centre of origin in America. Red pepper is the dried ripe fruits of *Capsicum* sp., indigenous to the American tropics and subtropics and the West Indies. It is a New World crop.

15. (a) : Haploid plants are those plants which have single set of chromosomes. Pollen grains are haploid as they are produced after meiosis so they are used for haploid production. It was first made in *Datura innoxia* by Guha and Maheshwari in 1964. Haploids are important in plant breeding as mutation can be easily detected in them and they are also used to produce homozygous diploids.
16. (d) : In crop movement programme, haploids are important because they form perfect homozygous lines. Homozygous are the pureline selection plants resulting from self pollination. In this way, considerable homozygosity is obtained. Haploids are those plants which possess a gametophytic number of chromosomes. Haploids are used in plant breeding, especially for the production of homozygous plants and in their studies in the detection of mutation.
17. (b) : A protoplast is a cell which has its cell wall removed by mechanical or enzymatic means.
18. (c) : Meristem is a localized group of cells, which are actively dividing and undifferentiated but ultimately giving rise to permanent tissue. Although the plant is infected with a virus, yet the meristem is free of virus. Therefore, meristem can be removed and grown in vitro to obtain virus free plants. Cultivation of axillary or apical shoot meristems is called meristem culture. The apical or axillary meristems are generally free from virus.
19. (c)
20. (c)
21. (d) : Young pollen grains produce androgenic haploids in anther cultures. Because rest all, i.e., anther wall, tapetal layer of anther wall and connective tissue are the diploid tissues as they are the part of anther pollen grains produced by meiosis.
22. (a)
23. (d)
24. (c)
25. (d)
26. (b)
27. (d)
28. (c)
29. (a)
30. (b)