

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION

1. is the agricultural practice of feeding, breeding and raising livestock. Choose the most appropriate word to fill in the blank.
 - (A) Animal husbandry
 - (B) Cattle improvement
 - (C) Both (A) and (B)
 - (D) Cattle farming

2. Crustacean fishery is connected with exploitation of
 - (A) oysters and crabs
 - (B) mussels and squids
 - (C) shell and cuttle fish
 - (D) crabs and prawn

3. The practices concerned with the improvement in animal husbandry include
 - (A) management of farm and farm animals
 - (B) management of animals and plants at a same place
 - (C) genetic engineering
 - (D) None of the above

4. Choose the correct option.
 - (A) More than 70% of the world livestock population is in India and China
 - (B) The contribution of India and china to the world farm produce is about 25%
 - (C) Important livestock of India are cattle and buffaloes
 - (D) All of the above

5. What measures should be taken for cattles, to realise the yield potential?
 - (A) They have to be housed well
 - (B) Feeding should be in scientific manner
 - (C) Hygienic milking, storage and transport of milk
 - (D) All of the above

6. Which of the following points should be kept into consideration for management of poultry farm?
 - A. Selection of disease free and suitable breeds
 - B. Proper and safe farm conditions

- C. Proper feed and water
- D. Hygiene and healthcare

- (A) A,B,C
- (B) A,C,D
- (C) A,B,C,D
- (D) None of these

7. Which of the following is an aim of animal breeding?

- (A) Increasing the yield of animals
- (B) Improving the desirable qualities of the produce
- (C) Producing better looking animals
- (D) Both (A) and (B)

8. The term 'inbreeding' refers to

- (A) mating of more closely related individuals within the same breed for 4-6 generations
- (B) mating of unrelated animals of the same breed
- (C) mating of animals within the same breed, but having no common ancestors up to 4-6 generations
- (D) superior males of one breed are mated with superior females of another breed

9. A superior female, in the case of cattle is the ...A... that produces more milk per lactation. On the other hand, a superior male is the ...B..., which gives rise to ...C... as compared to those of other males. Here, A to C refers to

- (A) A–cow, B–bull, C–superior progeny
- (B) A–buffalo, B–bull, C–inferior progeny
- (C) A–cow, B–bull, C–inferior progeny
- (D) A–cow, B–bull, C–normal progeny

10. Suggest a way to overcome inbreeding depression.

- (A) Selected animals should be mated with related superior animals of different breed
- (B) Selected animals should be mated with unrelated superior animals of same breed
- (C) Selected animals should be mated with related superior animals of same breed
- (D) Selected animals should be mated with unrelated superior animals of different breed

11. When breeding is between the unrelated animals, including individuals of the same breed but having no common ancestors for 4-6 generations or between different breeds or different species, is called
- (A) outbreeding
 - (B) inbreeding
 - (C) controlled breeding
 - (D) hybridisation
12. Controlled breeding experiments are carried out using
- (A) interspecific hybridisation
 - (B) artificial insemination
 - (C) outcrossing
 - (D) intraspecific hybridisation
13. During MOET at which of the following stages, embryo is transferred to surrogate mothers
- (A) Unfertilised ovules
 - (B) 2-celled stage
 - (C) Fertilised egg
 - (D) 8-32 celled stage
14. In which of the following techniques high milk giving breeds of females and high quality meat giving bulls have been bred successfully to increase herd size short time?
- (A) MOET
 - (B) Artificial insemination
 - (C) Interspecific hybridisation
 - (D) Induced mutation
15. Which of the following given point is important for successful bee-keeping?
- (A) Knowledge of the nature and habits of bees
 - (B) Selection of suitable location for keeping the beehives
 - (C) Catching and hiving of swarms (group of bees) and their management during different seasons
 - (D) All of the above
16. Which of the following is not a freshwater fishes?
- (A) catla
 - (B) rohu

- (C) common carp
- (D) mackerel

17. Green revolution in India was possible due to

- (A) exploitation of high yielding varieties
- (B) intensive cultivation
- (C) better irrigation, fertilisers and pesticide facilities
- (D) All of the above

18. Following are the steps to produce a new genetic variety of crop.

Collection of germplasm.

A



Cross-breeding /Hybridisation

B



Testing, release and commercialisation of the new cultivars

Choose appropriate option for A and B.

- (A) A–Selection of parents; B–Testing of superior recombinants
 - (B) A–Evaluation of parents; B–Selection of superior recombinants
 - (C) A–Testing of parents; B–Selection of superior recombinants
 - (D) A–Evaluation and selection of parents; B–Selection and testing of superior recombinants
19. In case of plant breeding, cross hybridisation is a time consuming and tedious process because
- (A) pre-existing genetic variability is collected from wild varieties, species and relatives of the cultivated crop species
 - (B) it involves the selection of plants among the progeny of the hybrids with desired combination of characters
 - (C) it involves emasculation and bagging techniques to transfer desired pollen grains to the stigma of desired plant
 - (D) None of the above
20. During selection and testing of superior recombinants, selected superior plants are self-pollinated for several generation. Why?
- (A) So that they reach a state of uniformity (homozygosity)
 - (B) So that the characters will not segregate in the progeny
 - (C) Both (A) and (B)
 - (D) Selected superior plants are not self-pollinated but cross-pollinated

21. Semidwarf variety of wheat was developed at
- (A) International Centre for Wheat and Maize Improvement Brazil
 - (B) International Centre for Wheat and Maize Improvement Mexico
 - (C) International Centre for Wheat and Rice Improvement Japan
 - (D) International Centre for Wheat and Gram Improvement Mexico
22. Where Taichung Native-1 was developed?
- (A) Taraiva
 - (B) Tokyo
 - (C) Tallinn
 - (D) Taiwan
23. *Saccharumbarberi* and *Saccharumofficinarum* are varieties of
- (A) sugarcane
 - (B) maize
 - (C) wheat
 - (D) rice
24. Method(s) of breeding plants for acquiring disease resistance is/are
- (A) conventional breeding techniques
 - (B) mutation breeding
 - (C) tissue culture
 - (D) Both (A) and (b)
25. Himgiri developed by hybridisation and selection for disease resistance against rust pathogens is a variety of
- (A) chilli
 - (B) maize
 - (C) sugarcane
 - (D) wheat
26. The process by which genetic variations are created through changes in the base sequences within genes is
- (A) plant breeding
 - (B) interspecific hybridisation
 - (C) outcrossing
 - (D) mutation

27. Some released crop varieties bred by hybridisation and selection, for insect pest resistance are given in the table. Fill up the blanks.

Crops	Varieties	Insect pests
Brassica	A	Aphids
B	PusaSem 2, Pusa Sem-3	Jassids aphids and fruit borer
C	PusaSawani, Pusa A-4	Shoot and fruit borer

- (A) A–Pusa Karan, B–Flat bean, C–Bhindi
- (B) A–Pusa Gaurav, B–Flat bean, C–Okra
- (C) A–PusaShubhra, B–Wrinkled bean, C–Pea
- (D) A–PusaKomal, B–Smooth bean, C–Bhindi

28. Hidden hunger is best indicated as

- (A) inability of majority of people to buy enough fruits, vegetables, legumes, fish and meat and thus suffer from deficiency of vitamin, protein, etc.
- (B) people are unable to buy healthy drink item and thus suffer from deficiency
- (C) people are unable to buy junk food thus suffer from deficiency
- (D) All of the above

29. Single cell protein is an alternative protein source for animal and human nutrition formed from certain beneficial microorganisms like

- (A) Spirulina
- (B) Methylophilusmethylophilus
- (C) Both (A) and (B)
- (D) None of the above

30. The technique of regeneration of whole plant from any part of a plant by allowing it to grow on a suitable culture under aseptic sterile conditions in vitro is called

- (A) tissue culture
- (B) plant culture
- (C) micropropagation
- (D) somatic hybridisation

31. To meet the demands of the society, in vitro production of a large number of plantlets in a short duration is practiced in floriculture and horticulture industry today. It is called

- (A) somatic hybridisation
- (B) micropropagation
- (C) hybridoma technology
- (D) somaclonal variation

32. Somatic hybrids are produced by the fusion of

- (A) protoplasts of two cells
- (B) cytoplasm of two cells
- (C) nucleus of two cells
- (D) DNA of two cells

33. The process of fusion of protoplast of somatic cells obtained from different varieties or species of plant on a suitable nutrient medium in vitro to develop a somatic hybrid is called

- (A) somatic hybridisation
- (B) cross hybridisation
- (C) intravarietal hybridisation
- (D) interspecific hybridisation

34. Pomato is a somatic hybrid of

- (A) potato and onion
- (B) potato and tomato
- (C) potato and brinjal
- (D) brinjal and tomato

Answer Key

1	(A)	2	(D)	3	(A)	4	(D)	5	(D)
6	(C)	7	(D)	8	(A)	9	(A)	10	(B)
11	(A)	12	(B)	13	(D)	14	(A)	15	(D)
16	(D)	17	(D)	18	(D)	19	(C)	20	(C)
21	(B)	22	(D)	23	(A)	24	(D)	25	(D)
26	(D)	27	(B)	28	(A)	29	(C)	30	(A)
31	(B)	32	(A)	33	(A)	34	(B)		

HINTS & EXPLANATION

11. (A) Outbreeding refers to the mating of unrelated animals belonging to Individuals of the same breed but having no common ancestors on either side for at least 4-6 generations (outcrossing). Individuals of the different breeds (cross-breeding). Individuals of different species (interspecific hybridisation).
12. (B) Controlled breeding experiments are carried out using artificial insemination (and MOET). In this process semen from chosen male is injected into reproductive tract of chosen females. By this desirable matings are performed.
13. (D) During MOET fertilised eggs at 8-32 cells stages, are recovered non-surgically and transferred to surrogate mothers. The genetic mother is available for another round of superovulation. This technology has been demonstrated for cattle, sheep, rabbits, buffaloes, mares, etc.
17. (D) During the mid 1960s, Green revolution in India was witnessed, i.e. a rapid increase in the production of agricultural products (particularly wheat). It was possible due to the introduction of high yielding varieties, increased irrigation facilities, application of fertilisers and pesticides, multiple cropping and better agricultural management.
24. (D) Plant breeding is carried out by the conventional breeding techniques or by mutation breeding. The conventional method of breeding for disease resistance is that of hybridisation and selection. Mutation breeding is defined as the process of breeding by artificially inducing mutations using chemicals (like aniline) or radiations like (gamma radiation).
26. (D) Mutation is the process by which genetic variations are created through changes in the base sequence within genes. It results in the creation of a new character or trait not found in the parental type.
28. (A) Hidden hunger is indicated as the lack of protein, vitamins and micronutrients deficiencies in the food. This is because not all people can afford to buy adequate vegetable, fruits, legumes, fish and meat. Thus, more than 840 million people in the world suffering from hidden hunger.
29. (C) Single cell proteins are formed from certain beneficial microorganisms like Bacteria — *Methylophilus methylotrophus* Cyanobacteria — *Spirulina*.
32. (A) Somatic hybrids are produced by the fusion of protoplasts of two cells, each having a desirable character.
34. (B) Pomato is a somatic hybrid obtained by a mating between potato and tomato whereas bomato is a somatic hybrid between brinjal and tomato