BYJU'S EXAM PREP

Important Questions on Breeding and MAS

Plant & Animal Breeding

Question 1. In animal breeding for developing a pure line which of the following method is used?
A. Inbreeding
B. Hybridization
C. Outcrossing
D. Crossbreeding

Ans. A
Solution. Inbreeding method known to increase homozygosity, so if we wish to evolve pure lines of animal, this method is necessary. It also exposes recessive gene which is harmful that are then eliminated by selection. Inbreeding method helps in the accumulation of superior gene and for elimination of undesirable gene.

Question 2. In the following methods, which one is not included in out- breeding?
A. Cross breeding
B. Out crossing
C. Interspecific hybridization
D. Inbreeding

Ans. D
Solution. Out breeding is breeding method of unrelated animals they may belong to individual of same breed but not have common ancestors for 4-6 generations (out crossing), or may have between different breed (cross breeding) or may include different species (Interspecific hybridization). So, all these are out-breeding techniques and inbreeding is not included in this.

Question 3. What do you understand by inbreeding?
A. Mating of unrelated species
B. Mating of closely related species
C. Matting of different breeds
D. Matting of clones

Ans. B
Solution. Inbreeding is the breeding method known for the mating of closely related individuals which belong to same breed for 4-6 generation. this breeding strategy follows the mating of superior male and superior female .

Question 4. Match the following and choose the correct option.

I) Pusa Savani	A) An allergic plant, created by traditional breeding
II) IR-8, Jaya, Padma	B) High yield variety of lady's finger
III) M S Swaminathan	C) High yield variety of wheat
IV) Kiwi	D) Green revolution

Options
A. I-A, II-C, III-D, IV-B
B. I-B, II-C, III-D, IV-A
C. I-C, II-B, III-D, IV-A
D. I-B, II-D, III-C, IV-A

Ans. B
Solution. Pusa Savani is the high yielding, resistant variety of ochra (bhindi). IR-18, Jaya, Padma are high yield variety of wheat, kiwi is an allergic plant wherein allergy is reduced by breeding technology; M.S, Swaminathan is the scientist the credited with bringing green revolution in India.

Question 5. Some examples are given below; which of them are new generation marker system?
A. Microsatellites or Short tandem repeats (STRs)
B. Sequence Tagged sites (STSs)
C. Single nucleotide polymorphism
D. All of the above

Ans. D
Solution. SSRs also known as short tandem repeats are molecular markers that are repeated units of 2-6 nucleotides, they are highly polymorphic marker and used in identifying gene and use to prepare a good breed. STSs also are short markers used in diagnosis of several diseases, single nucleotide poly morphism (SNP) is a molecular marker used to identify genetic variability. All these marker systems are used as diagnostic tools and known as new generation marker systems and are immensely useful in breeding programmes.

Question. 6 In marker-based breeding system of crop, success is dependent on genetic map with an adequate number of uniformly spaced polymorphic markers to accurately locate desire QTLs or major gene.
A. An ability to analyse large number of plants in a time or cost-effective manner.
B. Adequate recombination between the marker and rest of genome.
C. Close linkage between QTL and major gene of interest and adjacent markers
D. All of the above.

Ans. D
Solution. Marker-based breeding system of crop success depends on genetic map with an adequate number of uniformly spaced polymorphic markers to accurately locate desired QTLs or major gene; they have the ability to analyse large number of plants in a time and cost-effective manner. In marker system, Adequate recombination between the marker and rest of genome occurs and Close linkage between QTL and major gene of interest and adjacent markers make the process a success.

Question 7. Selective breeding is generally used for?
A. Domesticated species.
B. Wild species.
C. Endangered species.
D. Extinct species.

Ans. A
Solution. Selective breeding starts with the aim to increase the growth rate of meat production. The main aim of selective breeding is to develop a livestock having desirable traits and heritable component. It is generally used for selective breeding.

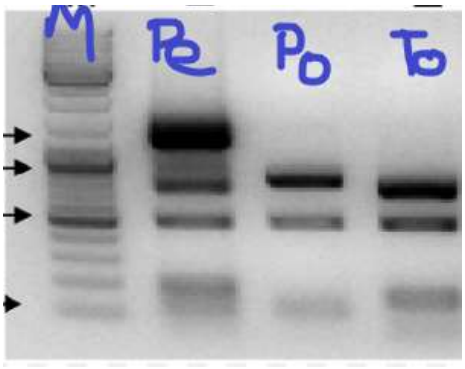
Question.8 In pedigree analysis technique, plant individuals are selected from which generation?
A. F1 Generation
B. F2 Generation
C. F3 Generation
D. F4 Generation

Ans. B
Solution. In pedigree analysis technique plant individuals are selected from F2 generation, and their progenies are tested in upcoming generations. And a record of whole parent and offspring relation is maintained as pedigree record.

Question 9. The technique which is used to reduce the period of breeding generation is known as?
A. Transgressive breeding
B. Test cross
C. Double haploid
D. Single seed descent

Ans. C
Solution. Double haploid is a technique which is used for reducing the cycle of breeding.

Question 10. For breeding, Comparative genome mapping in the family Solanaceae of three members is done which is tomato, potato, and pepper which shows that Tomato and potato share a near perfect conservation of gene order throughout their genomes. In contrast, white pepper shares most of its single copy DNA with tomato and potato. The gel used is given below:



What is the name of technique use in this picture?
A. RFLP
B. Sequencing
C. Breeding
D. None

Ans. A
Solution. The technique given is restriction fragment length polymorphism (RFLP), M is lane of marker, Pe is lane of Digested DNA of pepper, Po is Digested DNA of potato and To is lane of digested DNA of tomato.

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