

### Genetics and Plant Breeding (MCQ's)

1. Father of modern Genetics
  - a) T.H. Morgan
  - b) G.J. Mendel
  - c) East and Shull
  - d) Jones
2. An organism which has acquired a heritable variation as a result of sudden change in the hereditary material is called as
  - a) Biotype
  - b) Hybrid
  - c) Mutant
  - d) Albino
3. First man made Cereal
  - a) Wheat
  - b) Rice
  - c) Rye
  - d) Triticale
4. Triticale is a cross of
  - a) Rye x Wheat
  - b) Bread Wheat x Rye
  - c) Wheat x Maize
  - d) Maize x Rye
5. Who made first artificial hybrid
  - a) Grew
  - b) Seth Wright
  - c) Thomas Fairchild
  - d) G.J. Mendel
6. Emasculation of flower is necessary for hybridization in
  - a) Male sterile plants
  - b) Self incompatible plants
  - c) Self pollinated plants
  - d) Dioecious plants
7. The term gene was coined by
  - a) Mendel
  - b) Shull
  - c) Baetson
  - d) Johannsen
8. Cytoplasmic male sterility is best suited for hybrid seed production in
  - a) Self pollinated crops
  - b) Cross pollinated crops
  - c) Vegetatively propagated crops
  - d) All of the above
9. The cross between two inbred lines is known as
  - a) Double cross
  - b) Back cross
  - c) Single cross
  - d) Test cross
10. Multiple effect of single gene
  - a) Polyploidy
  - b) Heteroploidy
  - c) Pleiotropy
  - d) None of these
11. Who made Raphanobrassica
  - a) U Nagaharu
  - b) Karpechenko
  - c) Mendel
  - d) Rimpu
12. First hybrid of cotton
  - a) H-4
  - b) Varalaxmi
  - c) Ganga
  - d) None of these

13. The chromosomes are most condensed at  
a) Prophase c) Metaphase  
b) Anaphase d) Telophase
14. Queen of Genetics  
a) Grasshopper c) Both a and b  
b) Drosophila d) None of these
15. In green plants photosynthesis takes place in  
a) Protoplastids c) Leucoplastids  
b) Chromoplastids d) Chloroplasts
16. Site of protein synthesis in cell is  
a) Endoplasmic Reticulum c) Mitochondria  
b) Ribosomes d) Chloroplasts
17. The defective copies of normal genes are known as  
a) Split genes c) Jumping genes  
b) Pseudo genes d) Selfish genes
18. Pearlmillet is predominantly cross pollinated because it is  
a) Protoandrous c) Protogynous  
b) Hermaphrodite d) Heterozygous
19. The most important factor which determines stability of seed is  
a) Light c) Temperature  
b) Nutrients d) Moisture
20. In seed testing, grow out test is conducted to determine  
a) Physical purity c) Seed viability  
b) Genetic purity d) None of these
21. How many stamens are present in rice  
a) 3 c) 4  
b) 5 d) 6
22. How many stamens are present in wheat  
a) 3 c) 4  
b) 5 d) 6
23. IPGRI headquarter situated in  
a) New Delhi c) Sydney  
b) New York d) Rome
24. 'Law of Homologous Series' is given by  
a) Darwin c) Vavilov  
b) Debary d) Biffen
25. A fertilized mature ovule which possesses an embryonic plant, food reserve and protective coating in a plant species is  
a) Embryo sac c) Seed  
b) Embryonic callus d) Embryo

26. Pure line theory is given by
- Johannsen
  - Jones
  - Shull
  - Devis
27. Name of the pure line variety of French bean is
- Arka Bold
  - Princess
  - Arka Komal
  - None of these
28. Pure line variety is a
- Homozygous-Heterogenous
  - Heterozygous-Heterogenous
  - Homozygous-Homogenous
  - Heterogenous- Homozygous
29. Land races are
- Advanced strains
  - Local varieties
  - Hybrid varieties
  - All of these
30. Source of dwarfing gene in wheat is
- Dee-gee-woo-gen
  - Opaque
  - Norin-10
  - Hipsoli
31. Dee-gee-woo-gen is the source of dwarfing gene in
- Wheat
  - Maize
  - Barley
  - Rice
32. The ratio of economic yield to the biological yield is
- Leaf area ratio
  - Total harvest
  - Total biomass
  - Harvest index
33. Genome of bread wheat
- ABR
  - ABD
  - AB
  - AD
34. Who made first intergeneric cross between bread wheat and rye
- Rimpu
  - Richey
  - Vavilov
  - Davenport
35. An amphidiploid between *B. nigra* and *B. campestris*
- B. napus*
  - B. juncea*
  - B. carinata*
  - B. oleracea*
36. Triploids are normally
- Fertile
  - Male sterile
  - Sterile
  - None of these
37. Cells without cell wall are known as
- Cybrids
  - Protoplasts
  - Chloroplast
  - Protoplastids
38. Superiority of  $F_1$  over their parents is known as
- Heterosis
  - Inbreeding depression
  - Hybrid vigour
  - Both a and c

39. Term heterosis first introduced by  
a) Hull c) Shull  
b) East d) Davenport
40. Highest uniformity is present in  
a) Single cross c) Double cross  
b) Three way cross d) Multiple cross
41. Progeny of single plant is produced by asexual reproduction is  
a) Clone c) Inbred  
b) Pure line d) Land race
42. An individual with gametic chromosome number is  
a) Monoploid c) Dihaploid  
b) Haploid d) Polyploid
43. Ploidy level of sugarcane is  
a) Tetraploid c) Hexaploid  
b) Octaploid d) None of these
44. Cabbage is cross pollinated due to  
a) Floral morphology c) Protandry  
b) Protogyny d) Self incompatibility
45. Non-functioning of pollen grains is known as  
a) Protandry c) Male sterility  
b) Self-incompatibility d) None of these
46. 'Breeding method for transferring monogenic disease resistance from wild species to improved variety of wheat is  
a) Pedigree method c) Bulk method  
b) Pure line selection d) Backcross method
47. Who discovered triangle of Brassica  
a) Rimpu c) Blakeslee  
b) Karpechenko d) Nagaheru
48. Genetically most pure seed is  
a) Breeder seed c) Truthful level seed  
b) Certified seed d) Nucleus seed
49. Collection of germplasm from foreign countries is called  
a) Alien collection c) Indigenous collection  
b) Exotic collection d) Indirect introduction
50. 'Colchicine' is generally used for  
a) Mutation c) Hybridization  
b) Chromosome doubling d) All of these

### **Answer Key**

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|--------------|--------------|
| <b>1. b</b>  | <b>40. a</b> |
| <b>2. c</b>  | <b>41. a</b> |
| <b>3. d</b>  | <b>42. b</b> |
| <b>4. b</b>  | <b>43. b</b> |
| <b>5. c</b>  | <b>44. d</b> |
| <b>6. c</b>  | <b>45. c</b> |
| <b>7. d</b>  | <b>46. d</b> |
| <b>8. c</b>  | <b>47. d</b> |
| <b>9. c</b>  | <b>48. d</b> |
| <b>10. c</b> | <b>49. b</b> |
| <b>11. b</b> | <b>50. b</b> |
| <b>12. a</b> |              |
| <b>13. b</b> |              |
| <b>14. b</b> |              |
| <b>15. d</b> |              |
| <b>16. b</b> |              |
| <b>17. b</b> |              |
| <b>18. c</b> |              |
| <b>19. d</b> |              |
| <b>20. b</b> |              |
| <b>21. d</b> |              |
| <b>22. a</b> |              |
| <b>23. a</b> |              |
| <b>24. c</b> |              |
| <b>25. c</b> |              |
| <b>26. a</b> |              |
| <b>27. b</b> |              |
| <b>28. c</b> |              |
| <b>29. b</b> |              |
| <b>30. c</b> |              |
| <b>31. d</b> |              |
| <b>32. d</b> |              |
| <b>33. b</b> |              |
| <b>34. a</b> |              |
| <b>35. b</b> |              |
| <b>36. c</b> |              |
| <b>37. b</b> |              |
| <b>38. d</b> |              |
| <b>39. c</b> |              |

