

GENETICS AND EVOLUTION

1. The ultimate source of variations is
 - (a) natural selection
 - (b) sexual reproduction
 - (c) mutations
 - (d) hormonal actions
2. An infertile plant hybrid can be made fertile by
 - (a) colchicine treatment
 - (b) polyploidy
 - (c) ganoson treatment
 - (d) all correct
3. Variations in the size, shape, colour or structure of an animal or in its parts are due to
 - (a) meristic variations
 - (b) blastogenic variations
 - (c) continuous variations
 - (d) substantive variations
4. Test cross is performed to know the genotype. It is a cross between
 - (a) F_1 hybrid with dominant parent
 - (b) F_1 hybrid with recessive parent
 - (c) two F_1 hybrids
 - (d) none of the above
5. A cross between hybrid and either of any parent is called
 - (a) test cross
 - (b) reciprocal cross
 - (c) monohybrid cross
 - (d) back cross
6. In a dihybrid cross, when one pair of alleles shows incomplete dominance, ratio comes to
 - (a) 1 : 2 : 1
 - (b) 2 : 4 : 2 : 1 : 2 : 1 : 1 : 2 : 1
 - (c) 3 : 6 : 3 : 1 : 2 : 1
 - (d) 9 : 3 : 3 : 1
7. The F_2 population raised from species having incomplete dominance has
 - (a) same phenotypic and genotypic ratio
 - (b) phenotypic ratio of 3 : 1
 - (c) a genotypic ratio of 1 : 2 : 1
 - (d) a variable phenotypic & genotypic ratio
8. What will be the total number of gametes, produced by a plant with genotype AaBbCcDd?
 - (a) 8
 - (b) 27
 - (c) 16
 - (d) 64
9. Simplest way to determine the genotype of the offspring of a cross is to use
 - (a) Pedigree chart
 - (b) Punnett square
 - (c) Generation chart
 - (d) Gene linkage
10. Human blood groups are an example of a
 - (a) cline
 - (b) diploidy
 - (c) polymorphism
 - (d) gradualism
11. If an unknown blood is added to anti-serum A, it will be of
 - (a) 'A' group if there is no clumping of RBC
 - (b) 'A' or 'AB' if there is clumping of RBC
 - (c) O group if there is poor clumping of RBC
 - (d) none of the above
12. The substitute of blood developed in recent times is
 - (a) Perfluorocarbon (PFC)
 - (b) CFC (Chlorofluorocarbons)
 - (c) PVC
 - (d) Leg-haemoglobin
13. Which of the following should be avoided in biological marriage?
 - (a) A^+ boy and A^+ girl
 - (b) A^+ boy and A^- girl
 - (c) O^+ boy and O^+ girl
 - (d) O^- boy and O^+ girl
14. After examining the blood groups of husband and wife, the doctor advised them

- not to have more than one child. The blood groups of the couple are likely to be
- (a) male Rh⁻ and female Rh⁺
 (b) female Rh⁻ and male Rh⁺
 (c) male Rh⁺ and female Rh⁺
 (d) male Rh⁻ and female Rh⁻
15. In F₂ generation, a ratio of 1 : 4 : 6 : 4 : 1 is obtained instead of 9 : 3 : 3 : 1, when two pairs of genes are considered, it indicates
- (a) incomplete dominance
 (b) quantitative inheritance
 (c) qualitative inheritance
 (d) pleotropic effect of genes
16. Thymine differs from Uracil in having
- (a) CH₃ group (b) C = O group
 (c) CHO group (d) COOH group
17. The difference in deoxyribose and ribose sugar is in the
- (a) first carbon (b) second carbon
 (c) 4th carbon (d) 5th carbon
18. In the sperms, instead of histone the basic protein is
- (a) protamines (b) albumin
 (c) nuclein (d) none of these
19. DNA strands are antiparallel because of
- (a) H - bonds
 (b) phosphor-diester bonds
 (c) disulphide (S - S bonds)
 (d) none of the above
20. In vitro synthesis of RNA & DNA was made by
- (a) Ochoa & Nirenberg
 (b) Ochoa & Kornberg
 (c) Kornberg & Nirenberg
 (d) Nirenberg & Khorana
21. Central Dogma of modern genetics is
- (a) DNA → RNA → Protein
 (b) DNA → DNA → RNA → Protein
 (c) RNA → DNA → RNA → Protein
 (d) RNA → RNA → DNA → Protein
22. Eukaryotes differ from prokaryotes in the mechanism of DNA replication due to
- (a) different enzymes for the synthesis of DNA strands
 (b) discontinuous rather than semi continuous replication
 (c) use of DNA primer rather than RNA primer
 (d) unidirectional rather than bidirectional replication
23. DNA replication is
- (a) semiconservative directional and continuous
 (b) semi conservative bidirectional and continuous
 (c) semi conservative bidirectional and discontinuous
 (d) semi conservative only
24. Which of the following genetic units moves from one chromosome to another or from one replicon to another and causes genetic changes?
- (a) Muton (b) Replicon
 (c) Transposon (d) Cistron
25. If one chain of a DNA molecule has the base order 5' ATTGACGT3'..... then the base order of this complementary chain will be
- (a) 3' ATTGACGT 5' (b) 5' TGCAGTTA 3'
 (c) 5' TUUCTGCU 3' (d) 3' TAACTGCA 5'
26. Which step is absent in protein synthesis?
- (a) Transcription
 (b) Translation
 (c) Termination
 (d) Initiation and Elongation

27. Formation of RNA on DNA template is called
(a) translation (b) transcription
(c) transduction (d) replication
28. Which is recognition site of tRNA?
(a) Anticodon (b) Loop I
(c) Loop IV (d) 3'-OH end
29. RNA polymerase stops its activity by
(a) Rho (b) sigma (σ) factor
(c) UAG (d) AUG
30. In tRNA, CCA sequence is found at 3' end and G at 5' end. This CCA group is
(a) present from the beginning of tRNA formation
(b) added after transcription
(c) added after translation
(d) added before transcription
31. Primitive atmosphere were reducing because
(a) hydrogen atoms were few
(b) hydrogen atoms were active and in greater numbers
(c) nitrogen atoms were more
(d) oxygen atoms were more
32. Which of the following is a fossil?
(a) Euglena (b) Balanoglossus
(c) Sycon (d) Limulus
33. Beak in birds had teeth in
(a) Ostrich (b) Kiwi
(c) Pelican (d) Archaeopteryx
34. The age of rock is calculated on the basis of
(a) types of fossils present
(b) number of strata present
(c) amount of uranium present
(d) amount of lead present
35. Trilobates were dominant in
(a) Precambrian (b) Cambrian
(c) Ordovician (d) Silurian
36. Man originated during
(a) Pliocene (b) palaeocene
(c) Miocene (d) Oligocene
37. Fossils of archaeopteryx reveal that
(a) reptiles were most evolved during triassic
(b) toothed birds originated from flying reptiles during triassic
(c) toothed birds originated during Jurassic
(d) toothed birds gave rise to primitive mammals
38. Dinosaurs were abundant in
(a) Jurassic (b) Devonian
(c) Permian (d) pleistocene
39. Fossil of Archaeopteryx is placed in
(a) Moscow (b) Newyork
(c) London (d) Paris
40. Living fossil is
(a) Lung fish (b) Flying fish
(c) Latimeria (d) Catla
41. Coenozoic era is called age of
(a) fishes, amphibians and reptiles
(b) amphibians, reptiles and birds
(c) birds and mammals
(d) mammals, birds, insects & Angiosperms
42. Which of the following sets do not have homologous organs?
(a) Wings of mosquito and butterfly
(b) Wings of butterfly and bird
(c) Mouth parts of cockroach and butterfly
(d) Forelegs of horse and paddies of whale
43. Peripatus is the connecting link between
(a) reptiles and mammals
(b) molluscs and arthropods
(c) annelids and arthropods
(d) annelids and helminthes

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| <p>44. The presence of temporary gills in the embryos of snakes, birds and man indicates that</p> <p>(a) these embryos need gills for breathing</p> <p>(b) ancestors of these animals had gills at one stage of evolution</p> <p>(c) lungs evolved from gills</p> <p>(d) medium in which these embryos develop resembles O₂ rich water</p> <p>45. Blood proteins are similar in</p> <p>(a) fishes and reptiles</p> <p>(b) amphibians and birds</p> <p>(c) amphibians and birds</p> <p>(d) birds and mammals</p> <p>46. Existence of Coal/Petroleum can be known from study of</p> <p>(a) ecology (b) economic Botany</p> <p>(c) paleobotany (d) bacteriology</p> <p>47. Which one is not vestigial in humans?</p> <p>(a) Tail vertebrae</p> <p>(b) Vermiform appendix</p> <p>(c) Muscles of pinnae</p> <p>(d) Maleus</p> <p>48. Wings of Mosquito, Bat and Bird show evolution called</p> | <p>(a) divergent (b) convergent</p> <p>(c) atavism (d) parallel</p> <p>49. Adaptation of organisms is its</p> <p>(a) moulting (b) metamorphosis</p> <p>(c) inheritable trait (d) acquired character</p> <p>50. Which of the following facts definitely casts doubt on the Lamarckian hypothesis?</p> <p>(a) Indian woman have been getting their ears pierced for thousand of years but not a single baby is born with pierced ears</p> <p>(b) Giraffes have long necks because they have to eat leaves from tall trees in their habitat</p> <p>(c) Deer have the capacity to escape from agile enemies, because these can run very fast</p> <p>(d) High altitude pines in Himalayan Mountains have branches which slope down so that snow fails to collect upon them in winter</p> |
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ANSWERS KEY

1	C	11	B	21	C	31	B	41	D
2	D	12	A	22	B	32	D	42	B
3	D	13	B	23	C	33	D	43	C
4	B	14	B	24	C	34	D	44	B
5	D	15	B	25	D	35	B	45	D
6	C	16	A	26	A	36	A	46	C
7	A	17	B	27	B	37	C	47	D
8	C	18	A	28	A	38	A	48	B
9	B	19	B	29	A	39	C	49	D
10	B	20	B	30	B	40	C	50	A