

SET -I

Q1. Which one of the following pairs of plant structures has haploid number of chromosomes?

- 1) Egg nucleus and secondary nucleus
- 2) Megaspore mother cell and antipodal cells
- 3) Egg cell and antipodal cells
- 4) Nucellus and antipodal cells

Q2. Unisexuality of flowers prevents

- 1) Autogamy and geitonogamy
- 2) Autogamy, but not geitonogamy
- 3) Both geitonogamy and xenogamy
- 4) Geitonogamy, but not xenogamy

Q3. Gel electrophoresis is used for

- 1) Isolation of DNA molecule
- 2) Cutting of DNA into fragments
- 3) Separation of DNA fragments according to their size
- 4) Construction of recombinant DNA by joining with cloning vectors

Q4. Which one of the following pairs of codons is correctly matched with their function or the symbol for the particular amino acid?

- 1) UUA, UCA – Leucine
- 2) GUU, GCU – Alanine
- 3) UAG, UGA – Stop
- 4) AUG, ACG - Start / Methionine

Q5. Biological Oxygen Demand (B.O.D) in river water

- 1) Gives measure of Salmonella in water
- 2) Increase when sewage gets mixed with water
- 3) Remains unchanged when algal bloom occurs
- 4) Has no relationship with concentration of oxygen in water

Q6. Semi-conservative mode of replication was first demonstrated in

- 1) *Streptococcus pneumonia*
- 2) *Salmonella typhimurium*
- 3) *Drosophila melanogaster*
- 4) *E. Coli*

Q7. Seminal plasma in human beings is rich in

- 1) Glucose and certain enzymes but has no calcium
- 2) Fructose and certain enzymes but poor in calcium

- 3) Fructose,calcium and certain enzymes
- 4) Fructose,calcium but has no enzymes

Q8. Stock has diameter many times more than scion in the case of

- 1) Wedge grafting
- 2) Crown grafting
- 3) Bud grafting
- 4) Tongue whip grafting

Q9. Pollen grains unite to form compact masses called pollinia in

- 1) *Calotropis*
- 2) *Crotolaria*
- 3) *Euphorbia*
- 4) *Ficus*

Q10. Ripening of essential organs of a flowering plant at different times is referred as

- 1) Herkogamy
- 2) Dichogamy
- 3) Heterostyly
- 4) Chasmogamy

Q11. Turn pipe mechanism or lever mechanism is found in the flowers of

- 1) *Ficus*
- 2) *Aristolochia*
- 3) *Amaranthus*
- 4) *Salvia*

Q12. Nucellar cells of a plant B which shows apospory has 60 chromosomes at anaphase. The new gametophyte after fertilization by a normal pollen forms a new plant G. What shall be the number of chromosomes in the young tapetal cell of the anther of the new plant G.

- 1) 45
- 2) 90
- 3) 60
- 4) 120

Q13. The number of sperms and ova produced by 25 primary spermatocytes and 25 primary oocytes respectively will be

- 1) 100 sperms and 25 ova
- 2) 100 sperms and 100 ova
- 3) 100 sperms and 50 ova
- 4) 50 sperms and 25 ova

Q14. Law of purity of gametes is based on

- 1) Test cross
- 2) Back cross
- 3) Monohybrid cross
- 4) Reciprocal cross

Q15. Which of the following amino acids was not synthesised in the Urey Miller Experiment?

- 1) Alanine
- 2) Glutamic Acid
- 3) Glycine
- 4) Aspartic acid

Q16. Which one of the aspects of evolution is shown by Darwin's finches

- 1) Biochemical evidence
- 2) Industrial melanism
- 3) Biogeographical evidence
- 4) Embryological evidence

Q17. The infective stage of malaria in human beings is

- 1) Gametocyte
- 2) Sporozoite
- 3) Eggs
- 4) Cyst

Q18. The technique of obtaining large number of plantlets by tissue culture method is called

- 1) Macropropagation
- 2) Organ culture
- 3) Plantlets culture
- 4) Micropropagation

Q19. The developmental history of mammalian heart shows that it passes through two chambered heart in fishes to 3 chambered in frogs to 4 chambered. To which hypothesis can this be approximated to ?

- 1) Biogenetic law
- 2) Hardy Weinberg Principle
- 3) Lamarck's theory
- 4) Mendelian Principle

Q20. The bacteria in the human gut can synthesise

- 1) Vitamin A
- 2) Vitamin C
- 3) Vitamin B-12 and K
- 4) Vitamin D

Q21. Relaxation, drowsiness, feeling of calmness, depressed brain activity shown by a drug addict may be due to

- 1) Marijuana
- 2) Amphetamine
- 3) Valium
- 4) Pethidine

Q22. The plant part which consists of two generations, one within the other is

- 1) Germinated pollen grain
- 2) Embryo
- 3) Seed
- 4) Unfertilised ovule

Q23. Gain or loss of chromosome is known as

- 1) Polyploidy
- 2) Monoploidy
- 3) Diploidy
- 4) Aneuploidy

Q24. The sequence of genes in lac operon is

- 1) i,p,o,z,y,a
- 2) i,o,z,,y.a,p
- 3) p,i,o,z,y,a
- 4) i,p,o,y,a

Q25. Wings of butterfly and birds show

- 1) Homology
- 2) Divergent evolution
- 3) Convergent evolution
- 4) Atavism

Q26. Antigen binding site in an antibody is found between

- 1) Two long chains
- 2) Two heavy chains
- 3) Between disulphide bonds
- 4) One heavy and one light chain

Q27. MOET is the

- 1) Hybridisation of poultry
- 2) Plant hybridisation
- 3) Hybridisation of cattle
- 4) Fish cultivation

Q28. Filiform apparatus is a modified form of

- 1) Egg
- 2) Synergid
- 3) Antipodals
- 4) Polar nuclei

Q29. A typical angiospermic anther is

- 1) Tetralobed and monothealous
- 2) Tetralobed and dithealous
- 3) Bilobed and monothealous
- 4) Bilobed and dithealous

Q30. The mature ovarian follicle collapses and shrinks after ovulation and is known as

- 1) Corpus albicans
- 2) Graafian follicle
- 3) Corpus callosum
- 4) Corpus luteum

Q31. In grafted plant, stock has 48 chromosomes and scion 24 chromosomes. The chromosome number of root cells and eggs are :

- 1) 24 and 24
- 2) 48 and 24
- 3) 24 and 12
- 4) 48 and 12

Q32. What will be number of chromosomes in pollen tube nucleus, antipodals, definitive nucleus and endosperm respectively if the radicle has a chromosome number 16?

- 1) 8,8,16,24
- 2) 8,8,16,16
- 3) 16,16,32,48
- 4) 8,8,16,48

Q33. The most active nitrogen fixer in the rice fields is

- 1) Azolla
- 2) Aulosira
- 3) Anabaena
- 4) Alnus

Q34. Zygote Intra Fallopian Transfer involves transfer of

- 1) 8-celled blastomere in fallopian tube
- 2) 32-celled blastomere in uterus
- 3) 8-celled blastomere in uterus
- 4) 16 celled blastomere in uterus

Q35. Two genes present on two different loci produce same effect when present alone but produce a new trait when present together, the genes are called as

- 1) Peiotropic
- 2) Complementary genes
- 3) Epistatic genes
- 4) Inhibitory genes

Q36. How many type of gametes will be produced by a plant having genotype AABbCC

- 1) One
- 2) Two
- 3) Three
- 4) Four

Q37. Adding 7- methylguanosine triphoshate at 5'end of hnRNA is called as

- 1) Splicing
- 2) Capping
- 3) Tailing
- 4) Profiling

Q38. Process of entry of pollen tube through integuments is called as

- 1) Chalazogamy
- 2) Porogamy
- 3) Dichogamy
- 4) Mesogamy

Q39. Hybrid vigour is due to

- 1) Inbreeding
- 2) Cross breeding
- 3) Linkage
- 4) Heterozygosity

Q40. The number of chromosomes in leaf tip cell of a plant is 6. The number of chromosomes in each of the 4 cells of its pollen tetrad would be :

- 1) 3
- 2) 6
- 3) 12
- 4) 24

SET II

Q1. In humans, at the end of first meiotic division, the male germ cells differentiate into

- 1) Spermatogonia
- 2) Primary spermatocytes
- 3) Secondary spermatocytes
- 4) Spermatids

Q2. What role does the filiform apparatus play at the entrance into ovule?

- 1) It guides pollen tube from a synergid to egg
- 2) It helps in the entry of pollen tube into a synergid
- 3) It prevents entry of more than one pollen tube into the embryo sac
- 4) It brings about opening of the pollen tube

Q3. *Trichoderma harzianum* has proved a useful microorganism for

- 1) Biological control of soil-borne plant pathogens
- 2) Bioremediation of contaminated soils
- 3) Reclamation of wastelands
- 4) Gene transfer in higher plants

Q4. To which type of barriers under innate immunity, do the saliva in the mouth and the tears from the eyes, belong?

- 1) Physical barriers
- 2) Cytokine barriers
- 3) Cellular barriers
- 4) Physiological barriers

Q 5. Point mutation involves

- 1) Duplication
- 2) Deletion
- 3) Insertion
- 4) Change in single base pair

Q6. Sickle cell anaemia is

- 1) Caused by change in single base pair of DNA
- 2) Characterised by elongated sickle like RBC's with nucleus
- 3) Sex linked disease
- 4) Caused by substitution of valine by glutamic acid

Q7. Removal of introns and joining of exons in a transcription unit is called as

- 1) Transformation
- 2) Capping
- 3) Splicing
- 4) Tailing

Q8. Select the incorrect statement from the following

- 1) Small population results in random genetic drift in population
- 2) Baldness is a sex limited trait
- 3) Linkage is an exception to principle of independent assortment in heredity
- 4) Galactosemia is an inborn error of metabolism

Q9. When two organisms themselves act as gametes the process is known as

- 1) Isogamy
- 2) Syngamy
- 3) Hologamy
- 4) Anisogamy

Q10. Pollen grains occur in form of masses called massulae in

- 1) Asteraceae
- 2) Orchidaceae
- 3) Fabaceae
- 4) Apiaceae

Q11. The pollination by snails is called as

- 1) Ophiophily
- 2) Cheiropterophily
- 3) Malacophily
- 4) Myrmecophily

Q12. Glands which secrete mucus to lubricate vagina during mating and time of parturition are

- 1) Cowper's gland
- 2) Prostate gland
- 3) Bartholin's gland
- 4) Pineal gland

Q13. The law which helps to determine the degree of evolutionary change by comparing the allele frequency at the starting point and at some future time was given by

- 1) Allen
- 2) Hardy Weinberg
- 3) Bergman
- 4) Von Baer

Q14. Progesterone in the contraceptive pills

- 1) Prevents ovulation
- 2) Inhibits estrogen
- 3) checks attachment of zygote to endometrium
- 4) inhibits mobility of sperms

Q15. The cross in which the genotypic ratio and the phenotypic ratio are the same is

- 1) Incomplete dominance
- 2) Co dominance
- 3) Complete dominance
- 4) Recessive epistasis

Q16. HIV that causes AIDS first starts destroying

- 1) Helper T-lymphocytes
- 2) B-lymphocytes
- 3) Leucocytes
- 4) Thrombocytes

Q17. Darwin's concept of natural selection in organic evolution is best supported by

- 1) Development of transgenic
- 2) Production of clones like 'Dolly'
- 3) Prevalence of pesticide resistant insects
- 4) Development of organs from stem cells for organ transplantation

Q18. Azolla is used as a biofertiliser as it has

- 1) Rhizobium
- 2) Cyanobacteria
- 3) Mycorrhiza
- 4) Large quantity of humus

Q19. Antibodies in our body are complex

- 1) Glycoprotein
- 2) Steroids
- 3) Prostaglandins
- 4) Lipoproteins

Q20. Each amino acid is coded by three codons. The number of Triplet of codons required to code 1000 amino acids is

- 1) $1000+1+1$
- 2) 1000
- 3) $1000+1$
- 4) $3000+1+1$

Q21. If E. Coli DNA has 32% adenine, fraction of cytosine present in it will be

- 1) 32%
- 2) 36%
- 3) 48%
- 4) 18%

Q22. Primary follicle is made up of

- 1) Primary oocyte surrounded by granulosa cells
- 2) Primary oocyte,theca cells and antrum
- 3) Follicular cells surrounding secondary oocyte
- 4) Secondary oocyte surrounded by granulosa cells and theca

Q23. Three dimensional shape of tRNA was given by Holley was

- 1) L shaped
- 2) Y shaped
- 3) Clover leaf like
- 4) X shaped

Q24. Protein synthesis in an animal cell takes place

- 1) in both,cytoplasm and mitochondria
- 2) in both,nucleus and cytoplasm
- 3) only in cytoplasm
- 4) only in ribosomes

Q25. Short lived immunity acquired from mother to foetus across placenta or through mother's milk to the infant is categorised as

- 1) Active immunity
- 2) Passive immunity
- 3) Cellular immunity
- 4) Innate non-specific immunity

Q26. When the body starts attacking self cells , the disease is known as

- 1) active immunity
- 2) passive immunity
- 3) auto-immunity
- 4) acquired immunity

Q27. Virus free plants can be obtained from

- 1) shoot tip culture
- 2) root tip culture
- 3) culture of a part of leaf
- 4) embryo culture

Q28. Formation of embryo directly from Nucellus and integuments is

- 1) Adventive polyembryony
- 2) Apospory
- 3) Apomixis
- 4) Apogamy

Q29. To produce haploid male gametes meiosis occurs in

- 1) Sporogenous cells
- 2) Microspores
- 3) Microspore tetrad
- 4) Microspore mother cells

Q30. Down's syndrome is caused due to

- 1) Monosomy of 21st chromosome
- 2) Trisomy of 21st chromosome
- 3) Extra Y chromosome in males
- 4) Extra x chromosome in female

Q31. An anther has only four Sporogenous cells , the number of pollen grains will be:

- 1) 16
- 2) 8
- 3) 12
- 4) 15

Q32. The enzymes to remove oil stains are obtained from

- 1) *Aspergillus niger*
- 2) *Candida lipolytica*
- 3) *Streptococcus sp.*
- 4) *Clostridium sp.*

Q33. The enzyme that converts glucose to alcohol is

- 1) Zymase
- 2) Invertase
- 3) Lipase
- 4) Hydrolase

Q34. A single trait controlled by many alleles is called as

- 1) Pleiotropy
- 2) Polygenic inheritance
- 3) Aneuploidy
- 4) Eugenics

Q35. One morgan or one map unit is equivalent to

- 1) 1% recombination between two genes
- 2) 5% recombination between two genes
- 3) 100% recombination between two genes
- 4) 50% recombination between two genes

Q36. The enzyme which acts as DNA nicking enzyme is

- 1) Isomerase
- 2) Topoisomerase
- 3) Gyrase
- 4) DNA Polymerase

Q37. Special type of Inflorescence found in *Ficus* is called as

- 1) Cyathium
- 2) Verticillaster
- 3) Hypanthodium
- 4) Capitulum

Q38. Censor mechanism of seed dispersal is found in

- 1) Papaveraceae
- 2) Liliaceae
- 3) Leguminosae
- 4) Rosaceae

Q39. Upon fertilization, while ovule develops into seeds, what structure develops from carpel?

- 1) Tegmen
- 2) Testa
- 3) Perisperm
- 4) Pericarp(fruit)

Q40. Somaclonal variations can be obtained by

- 1) Application of colchicines
- 2) Hybridisation
- 3) Tissue culture
- 4) Irradiation with gamma rays

Solutions :

SET -II									
1	2	3	4	5	6	7	8	9	10
2	2	1	4	4	1	3	1	3	2
11	12	13	14	15	16	17	18	19	20
3	3	2	1	1	1	3	2	1	1
21	22	23	24	25	26	27	28	29	30
4	1	3	1	2	3	1	3	4	2
31	32	33	34	35	36	37	38	39	40
1	2	1	2	1	2	3	3	4	3

SET -I									
1	2	3	4	5	6	7	8	9	10
3	2	3	3	2	4	3	2	1	2
11	12	13	14	15	16	17	18	19	20
4	2	1	3	2	3	2	4	1	3
21	22	23	24	25	26	27	28	29	30
3	4	4	1	3	4	3	2	4	1
31	32	33	34	35	36	37	38	39	40
4	1	2	1	2	2	2	4	4	1