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QAD Series

Cell Biology, Genetics

1. **The difference between eukaryotic and prokaryotic cells is**
   a) ribosome b) genetic material c) cell wall d) centriole
2. **Ability of a cell to from the whole organism is**
   a) totipotency b) cloning c) regeneration d) morphogenesis
3. **A plant cell differs from animal cell in the absence of**
   a) ER b) Mitochondria c) centrioles d) Ribosomes
4. **The ground substance of a living cell is**
   a) Cytoplasm b) protoplasm c) nucleoplasm d) endoplasm
5. **Endoskeleton of cell is**
   a) ER b) Cytoplasm c) Nucleus d) Tubules
6. **Protein synthesis occurs on**
   a) Golgi complex b) ribosomes c) lysosomes d) mitochondria
7. **Which one is largest cell organelle?**
   a) Nucleus b) Chloroplast c) Mitochondria d) Centriole
8. **Catalase is mainly secreted from:**
   a) glyoxysomes b) peroxisomes c) lysosomes d) ribosomes
9. **Plants lysosomes rich in fats and taking part in synthesis of fats are:**
   a) sphaerosomes b) glyoxysomes c) microsomes d) lysosomes
10. **Cell organelle common in Protista and Monera is**
    a) Lysosome b) Ribosome c) Chloroplast d) Vacuoles
11. **The organelle which acts as a factory for the synthesis of sugars in autotrophic eukaryotes is**
    a) Mitochondria b) Endoplasmic reticulum
    c) Chloroplast d) Ribosome
12. **The filaments associated with cilia and flagella are constituted by**
    a) Microtubules b) Microfilaments c) Microfibris d) Microvilli
13. **Protein tubulin does not occur in**
    a) Microtubules b) Plasma membrane
    c) Flagella d) Cilia
14. **All plastids have essentially the same structure because**
    a) All plastids have to store starch, lipids and proteins
    b) They have to perform the same functions
    c) They are localised in the aerial part of the plant
    d) One type of plastid can differentiate into another type of plastid depending upon the cell requirement.
15. **Cellular recognition and adhesion are facilitated by components of plasma membranes. These components are generally**
    a) Lipid molecule alone b) Protein molecule alone
    c) Both lipid and protein molecules d) Glycolipids and glycoproteins
16. **Animal cells differ from plant cells in having:**
    a) Centrosome b) Golgibody c) Vacuole d) Plastid
17. **Site for cellular respiration is:**
    a) Nucleus b) Ribosome c) Mitochondria d) ER
18. **Rough endoplasmic reticulum differs from smooth-walled endoplasmic reticulum by one of the following statements due to presence of**
    a) certain ergastic substance b) ribosomes
    c) nucleus d) DNA
19. **Fibrillar portion of nucleolus is composed of:**
    a) Protein b) Protein and RNA
    c) DNA d) RNA only
20. **Electron microscope has revealed the presence of:**
    a) Leucoplast b) Chloroplast c) Chromosome d) Ribosome
22. **Which one of the following contains a hydrolytic enzyme?**
    a) Mitochondria b) Lysosome c) Ribosome d) Peroxisome
23. **The outer layer of vacuole is called:**
    a) Tonoplast b) Cell wall
    c) Plasma layer d) None of these
24. **Controlling centre of cell is:**
    a) Nucleus b) Nucleolus c) Mitochondria d) Ribosome
25. **What is the work of centrosome?**
    a) Cell wall formation b) Cell plate formation
    c) Cell differentiation d) Cell division
26. **Which of the following has a single unit membrane organ?**
    a) Mitochondria b) Nucleolus c) Golgibody d) Lysosome
27. **Which is polymorphic organelle for suicidal bag?**
    a) Lysosome b) Nucleus c) Ribosome d) Mitochondria
28. **Photorespiration takes place in:**
    a) Peroxisomes b) Mesosomes c) Lysosomes d) Lomasomes
29. **Endoplasmic reticulum is attached (continues) with:**
    a) Ribosome b) Golgibody
    c) Mitochondria d) Nuclear membrane
30. **What is absent in prokaryotic cell?**
    a) karyotheca b) ribosomes c) cytoplasm d) protoplasm
31. **Centromere is a part of:**
    a) ER b) Mitochondria c) Chromosome d) Ribosomes
32. **"Cytoskeleton" consists of:**
    a) Cytoplasm b) ER
    c) Microtubules and microfilaments
    d) Cytoplasm with a network of microtubules and microfilaments
33. **The Singer and Nicolson model of plasma membrane differs from Robertson model in the**
    a) Number of lipid layers b) Arrangement of lipid layers
    c) Arrangement of proteins
    d) Absence of proteins in the Singer model
34. **Electron transport system in mitochondria is situated on:**
    a) Outer membrane b) Inter-cristae space
    c) Internal membrane d) matrix
35. **Prokaryotes are characterised by:**
    a) Lack of nuclear membrane b) Lack of nucleolus
    c) Having dispersed DNA, lack of membrane bound organelles like plastids and mitochondria
    d) All of the above
36. **One of the following is associated with cell division:**
    a) microsome b) microtubule c) ER d) Peroxisome
37. **Centriole is helpful in:**
    a) spindle formation b) nucleus form
    c) initiation of cell division d) cell plate formation
38. **Cell plate is produced by**
    a) Golgi complex b) lysosomes c) Ribosomes d) mitochondria
39. **Anthocyanin pigments are found in:**
    a) Cytoplasm b) vacuoles c) Chloroplast d) inclusions
40. **The structure found at primary constriction of chromosome is:**
    a) Centromere b) chromomere c) centrosome d) centrosphere
41. **A cell that lack nucleus will also lack:**
    a) ribosome b) polyribosome c) lysosomes d) chromosomes
42. **Full spindle formation occurs in:**
    a) prophase b) anaphase c) telophase d) metaphase
43. **Cell doubles in size and then stops growing in:**
    a) G_1 b) G_2 c) S d) M
44. **Anastral mitosis is found in**
    a) plants b) animals c) all living cell d) prokaryotes
45. **The no. of chromatids in a chromosome at metaphase is**
    a) 2 in mitosis & 1 in meiosis b) 1 in mitosis & 2 in meiosis
    c) 2 in mitosis & 2 in meiosis d) 2 in mitosis & meiosis
46. **Histone protein and RNA synthesis occurs in:**
    a) G_1 b) G_2 c) S phase d) anaphase
47. **The shape of chromosome is best observed at:**
    a) metaphase b) anaphase c) telophase d) prophase
48. **Centromere divides into two in:**
    a) Amitosis b) Mitosis c) Meiosis I d) Prophase I
49. **In plants cells division of cytoplasm occurs by:**
    a) Cell Plate b) Clearage c) Furrowing d) invagination
50. **Terminalization is end of chiasmata and occurs at:**
    a) zygotene b) pachytene c) diplotene d) diakinesis
51. **'Bouquet Stage' is seen in:**
    a) Leptotene b) Zygotene c) Pachytene d) meiosis
52. **Animal and plants cell division differ in:**
    a) prophase b) cytokinesis c) telophase d) metaphase
53. **DNA duplication occurs before**
    a) mitosis b) meiosis I & mitosis
    c) meiosis d) meiosis II & mitosis
54. **Exchange of chromosomal parts between non homologous chromosomes is called:**
    a) translocation b) transposition c) crossing over d) linkage
55. **Meiocyte is a cell in which occurs:**
    a) reduction division b) amitosis c) mitosis d) budding
56. **Cell becomes refractive and viscous first during:**
    a) prophase b) interphase c) anaphase d) Cytokinesis
57. **A wound heals because the cell undergo?**
    a) Amitosis b) Mitosis c) Fission d) Meiosis
58. **Bivalents are formed in:**
    a) diplotene b) pachytene c) zygotene d) interkinesis
59. **Cell division in sexual reproduction is:**
    a) amitosis b) mitosis c) meiosis d) mitosis & meiosis
60. **The dividing and undifferentiated cells are known as:**
    a) Embryo b) Tissue c) Callus d) Primordium
61. **A diploid somatic cell can divide by:**
    a) mitosis but not meiosis b) meiosis but not mitosis

c) meiosis or mitosis d) amitosis only

62. The gap between two successive divisions is called:
a) Interphase b) Interkinesis c) GT d) I phase

63. In a diploid cell, what will be the amount of DNA at end of G_2:
a) 4n b) 8n c) 2n d) n

64. Cancer is:
a) uncontrolled mitosis b) uncontrolled cell division
c) totipotency d) uncontrolled meiosis

65. What happens in meiosis?
a) one division of nucleus & one division of chromosomes
b) two division of nucleus & one division of chromosomes
c) two division of nucleus & two division of chromosomes
d) one division of nucleus & two division of chromosomes

66. Gametogensis involves:
a) mitosis b) meiosis c) both a & b d) growth

67. Crossing over results in:
a) segregation of alleles b) Recombination of linked alleles
c) Linkage between genes d) Dominance of alleles

68. In a dividing somatic cell, which one of the following stage is diploid?
a) G_1 b) G_2 c) S d) M

69. In cell cycle, DNA/chromosomes double in its amount due to its synthesis. It occurs in:
a) G_1 phase b) G_2 phase c) S phase d) I phase

70. Number of meiotic division required to produce 100 microspores in an angiosperm is:
a) 125 b) 100 c) 50 d) 25

71. In *Pinus*, no. of chromosomes in pollen grains in 6. The no. of chromosomes in endosperm after fertilization will be:
a) 12 b) 24 c) 36 d) 6

72. In wheat plant what is the minimum number of meiotic division required to contain 100 grains?
a) 50 b) 100 c) 125 d) 200

73. Acetocarmine is used to stain chromosomes in cell division. This carmine is obtained from:
a) colchicum b) insect c) hematoxylin d) a chemical

Genetics

1. Which one of the following has more than single characters?
a) Hb^A b) Hb^S c) I^A d) I^{AB}

2. Nitrogen containing organic compounds are
a) Purines b) Pyrimidine c) both d) S-carbon sugar

3. RNA differs from DNA in having
a) thymine instead of adenine b) guanine instead of cytosine
c) uracil instead of thymine d) all of three

4. The genetic material of tobacco mosaic virus is
a) RNA b) mRNA c) DNA d) t-RNA

5. Hershy and Chase (1954) used P^{32}, a radioactive isotope of phosphorus in order to label
a) t- RNA b) DNA c) proteins d) lipids

6. Nucleotides are joined together during DNA synthesis by
a) RNA polymerase b) DNA polymerase
c) Ligase d) DNA gyrase

7. The store house for all biological information in cells is
a) RNA b) DNA c) m-RNA d) Nucleolus

8. A complex of ribosomes attached at single m-RNA is called
a) Lysosome b) polypeptide c) polymer d) polysome

9. UAG, UGA and UAA are
a) start signals b) termination codon
c) code of three amino acid d) initiation codon

10. The initiation codon is
a) GUG b) UAA c) UAG d) UGA

11. Transcription is carried out by
a) DNA polymerase b) RNA polymerase
c) polynucleotide ligase d) both b & C

12. Gene was termed by
a) Khorana b) Johanssen c) Kronberg d) Nirenberg

13. Based on the triplet codon concept, there are..... types of triplet codons
a) 60 b) 61 c) 70 d) 64

14. The alternative states of the same gene are termed
a) alleles b) cistrons c) factors d) genes

15. In modern terminology the pair of contrasting character is
a) alleles b) genes c) factors d) cistrons

16. The phenotypic ratio of the F_2 generation of a dihybrid cross is
a) 9:7 b) 9:6:1 c) 9:5:1 d) 9:3:3:1

17. If a plant heterozygous for tallness is selfed, the F_2 generation has both tall and dwarf plants. This proves the principle of:
a) dominance b) segregation
c) independent assortment d) purity of gametes

18. A cross made to study the pattern of inheritance of a single pair of characters is known as a
a) monohybrid cross b) dihybrid cross
c) back cross d) test cross

19. *Neurospora* is a very good material in genetics because
a) It can be cultured in defined medium in the laboratory
b) Its vegetative phase is haploid
c) It has a very short life-cycle d) all of the above

20. A marriage between two carriers of sickle cell anaemia produce ratio of
a) 2:1 b) 2:2 c) 3:1 d) 9:3:3:1

21. Sickle cell anaemia has lethal effect in
a) heterozygous condition b) diseased condition
c) homozygous condition d) hemizygous condition

22. Most of the genes are the blue prints for the synthesis of
a) r-RNA b) m-RNA c) t-RNA d) all the three

23. Cross between AbBb with aabb is
a) monohybrid cross b) out cross c) back cross d) test cross

24. The complete set of chromosomes, inherited as a single unit, from one parent, is known as:
a) Linkage b) Genotype c) Gene pool d) Genome

25. The plants having same genotype are called:
a) Population b) Community c) Clone d) Group

26. A normal man marries a colourblind female. Then the grandsons of F_2 generation would be:
a) all normal b) all colourblind
c) all normal but carriers d) 50% normal and 50% carriers

27. In the ABO system of blood group, if both antigens are present but no antibody, the blood group of the individual would be:
a) B b) O c) AB d) A

28. A person with blood group A has:
a) Antigen A and antibody b b) Antigen B and antibody b
c) Antigen A and antibody B d) No antibody and no antigen

29. A haemophilic man marries a normal homozygous woman. What is the probability that their son will be haemophilic?
a) 1/2 b) 1/4 c) 1/6 d) 0

30. A couple has six daughters. What is the possibility of their having a girl next time?
a) 10% b) 50% c) 90% d) 100%

31. Criss-cross inheritance is observed for genes present on:
a) Autosomes b) Y-chromosomes
c) X-chromosomes d) X and Y chromosomes

32. In a monohybrid cross, pure homozygous plant will be:
a) 9 b) 2 c) 1 d) 4

33. Crossing involves
a) sister chromatids b) non-sister chromatids
c) two daughter chromosomes d) two homologous chromosomes

34. Multiple alleles control inheritance of:
a) Phenylketonuria b) Colour blindness
c) Sickle cell anaemia d) Blood group

35. A polygenic inheritance in human being is:
a) Skin colour b) Phenylketonuria
c) Colour blindness d) Sickle cell anaemia

36. Foetal sex can be determined by examining cell from amniotic fluid looking for:
a) Barr body b) Chromosomes c) Chiasmata d) Kinetochores

37. Phenomenon of linkage was first discovered in:
a) *Lathyrus odoratus* b) Garden pea
c) *Mirabilis jalapa* d) Snapdragon

38. Which of the following is called *Drosophila* of plant kingdom?
a) *E. coli* b) *Chlorella* c) *Neurospora* d) *Saccharomyces*

39. Which of the following mutagens can be best used in inducing mutation in microorganisms?
a) X-rays b) β-rays c) UV-rays d) γ - rays

40. No. of linkage group is equal to.....number of chromosomes.
a) diploid b) haploid c) polyploid d) tetraploid

41. The ratio of 1:4:6:4:1 represents
a) epistasis b) blending inheritance
c) law of dominance d) linkage

42. Klenfelter's syndrome is
a) XXY b) XYY c) XXX d) XO