TGT Biology

1. The root cell of wheat plant has 42 chromosomes. What would be the number of chromosomes in the synergid cell?

a. 28
b. 21
c. 14
d. 7

2. Preparation of sperm before penetration of ovum is:-

a. Capacitation
b. Insemination
c. Coition
d. Spermation

3. Primary succession on land occurs as:-

a. Plankton → submerged → floating stage → marsh stage → climax stage
b. Lichen → mosses → annual grass → shrubs → trees
c. Mosses → lichen → annual grass → shrubs → trees
d. All of the above

4. Find the correct match.

a. Mustard plant : leaves are alternate
b. Mustard plant : leaves are opposite
c. Guava plant : leaves are whorled
d. Guava plant : leaves are alternate

5. Leguminous plants are able to fix atmospheric nitrogen through the process of symbiotic nitrogen fixation. Which one of the following statements is not correct during this process of nitrogen fixation?

a. Leghaemoglobin scavenges oxygen and is pinkish in colour
b. The enzyme nitrogenase catalyses the conversion of atmospheric N_2 to NH_3
c. Nitrogenase is insensitive to oxygen
d. Nodules act as sites for nitrogen fixation

6. When domestic sewage mixes with river water:-

a. The increased microbial activity uses up dissolved oxygen
b. The river water is still suitable for drinking as impurities are only about 0.1%
c. The increased microbial activity releases micronutrients such as iron
d. Small animals like rats will die after drinking river water

7. If you suspect major deficiency of antibodies in a person, to which of the following would you look for confirmatory evidence?

a. Fibrinogen in the plasma
b. Serum albumins
c. Haemocytes
d. Serum globulins

8. Cyanobacteria helps farmers by:-

a. Neutralising the alkalinity of the soil
b. Water logging
c. Reducing the acidity of the soil
d. Reducing the alkalinity of the soil

9. Choose the correct sequence of taxonomic categories.

a. Class - Phylum - Order - Family - Genus - Species
b. Division - Class - Family - Order - Genus - Species
c. Phylum - Order - Class - Family - Genus - Species
d. Division - Class - Order- Family - Genus - Species

10. Botanical gardens provide:-

a. Repository of tropical plants
b. Ex-situ conservation of germplasm
c. Natural habitat to wildlife
d. Beautiful area for recreation

11. *Hydra* receives stimuli through:-

a. Nematocysts
b. Nerve net
c. Sensory cells
d. Sea horse

12. Some vascular bundles are described as open because these:-

a. Are surrounded by pericycle but no endodermis
b. Are capable of producing secondary xylem and phloem
c. Possess conjunctive tissue between xylem and phloem
d. Are not surrounded by pericycle

13. With reference to enzymes, which one of the following statements is true?

a. Apoenzyme = Holoenzyme + Coenzyme
b. Holoenzyme = Apoenzyme + Coenzyme
c. Holoenzyme = Coenzyme - Apoenzyme
d. Coenzyme = Apoenzyme + Holoenzyme

14. In a double stranded DNA, the sequence of nucleotides in one strand are 3'ATTCGCTAT 5'. What will be the complementary sequence on the other strand?

a. 3' TAAGCGATA 5'
b. 5' ATTCGCTAT 3'
c. 5' TAAGCGATA 3'
d. 5' TAAGCGTTA 3'

15. One of the following is a mismatch:-

a. Odd toed - Horse
b. Pheretima - Parapodia
c. Cartilagenous fish - Shark
d. Hydra - Cridarian

16. The egg found in monotremata is:-

a. Macrolecithal
b. Microlecithal
c. Mesolecithal
d. None of the above

17. Which one of the following features is common in silver fish, scorpion, dragonfly and prawn?

a. Cephalothorax and tracheae
b. Chitinous cuticle and two pairs of antennae
c. Jointed appendages and chitinous skeleton
d. Three pairs of legs and segmented body

18. Synandrous condition is the fusion of:-

a. Both filaments and anthers
b. Petals
c. Filaments only
d. Anthers only

19. If turgor pressure becomes equal to wall pressure, then:-

a. No exchange of water takes place
b. Solute goes from the cell into water
c. Water leaves the cell
d. Water enters the cell

20. 1st life on earth was:-

a. Photoautotrophs
b. Chemo heterotrophs
c. Cyanobacteria
d. Autotrophs

21. Vernalization is the process of:-

a. Acceleration of the ability of a plant to produce flowers by chilling treatment
b. Flower induction by light treatment
c. Inhabitation of flowering by low temperature treatment
d. Flower induction by high pressure treatment

22. Which one of the following is the correct matching of a vitamin, its nature and its deficiency disease?

a. Vitamin K - water soluble - pellagra
b. Vitamin A - fat soluble - night blindness
c. Vitamin A - fat soluble - beri-beri
d. Vitamin K - fat soluble - beri-beri

23. Darwins finches represents:-

a. Climatic variation
b. Reproductive isolation
c. Morphological variation
d. Geographical isolation

24. Pick out the wrong statement.

a. Sequoia, a gymnosperm, is one of the tallest trees
b. Moss is a gametophyte which consists of two stages namely, protonema stage and leafy stage
c. Double fertilization is unique to gymnosperms and monocotyledons
d. Phaeophyceae members possess chlorophyll a, c, carotenoids and xanthophyll

25. Which one of the following synthetic growth regulators is used to promote synchronized flowering in pineapple?

a. 2-chloroethylphosphonic acid
b. Indolebutyric acid
c. Benzyl aminopurine
d. Phenyl mercuric acetate

26. Ecological succession on sand is:-

a. Psammosere
b. Hydrosere
c. Halosere
d. Xerosere

27. Number of turns of C3 cycle required to synthesize one molecule of glucose from the pathway is:-

a. 3
b. 2
c. 6
d. 12

28. Fibrin is produced by:-

a. Thrombokinase
b. Prothrombin
c. Liver
d. Proteolysin

29. What used to be described as Nissls granules in nerve cell are now identified as?

a. Ribosomes
b. Cell metabolites
c. Mitochondria
d. Fat granules

30. The important function of lymph is to:-

a. Return RBCs to the lymph nodes
b. Return interstitial fluid to the blood
c. Transport CO_2 to the lungs
d. Transport oxygen to the brain

31. Four healthy people in their twenties got involved in injuries resulting in damage and death of a few cells of the following. Which of the cells are least likely to be replaced by new cells?

a. Neurons
b. Liver cells
c. Malpighian layer of skin
d. Osteocytes

32. Extranuclear inheritance is a consequence of presence of genes in:-

a. Mitochondria and chloroplasts
b. Endoplasmic reticulum and mitochondria
c. Ribosome and chloroplasts
d. Lysosomes and ribosomes

33. Na^+ - K^+ dependent ATPase activity helps in transport of:-

a. K^+ inward, Na^+ outward
b. K^+ inward only
c. K^+ outward, Na^+ inward
d. Na^+ inward only

34. Following ratio is generally constant for a given species:-

a. G + C / T + A
b. A + G / C + T
c. T + C / G + A
d. A + C / T + G

35. Allosteric modulation is due to the inhibitory action of enzyme by:-

a. Products of reaction
b. Substrate concentration
c. Competitive inhibition
d. Enzyme concentration

36. Niche overlap indicates:-

a. Mutualism between two species
b. Two different parasites on the same host
c. Sharing of one or more resources between the two species
d. Active cooperation between two species

37. The plants growing in deserts, to tolerate water stress, have:-

a. Stem modified into leaf-like form
b. Stipular spines
c. No stomata
d. Long roots reaching water table

38. Formation of non-functional methaemoglobin causes blue-baby syndrome. This is due to:-

a. Increased methane content in the atmosphere
b. Excess of nitrates in drinking water
c. Excess of arsenic concentration in drinking water
d. Deficiency of iron in food

39. Dumbbell shaped guard cells are found in:-

a. Groundnut
b. Bean
c. Wheat
d. Sunflower

40. Bacterial photosynthesis does not show:-

a. Utilization of energy
b. Evolution of oxygen
c. Formation of organic product
d. Photosystem I

41. Green colour of bile is derived from:-

a. Breakdown products of red pigment of broken RBCs
b. Chlorophylls of various vegetables we consume
c. Fatty acid metabolism
d. Tryptophan metabolism

42. A patient is generally advised to specially consume more meat, lentils, milk and eggs in diet only when he suffers from:-

a. Kwashiorkor
b. Scurvy
c. Rickets
d. Anemia

43. If R.Q. is 0.6 in a respiratory metabolism, it would mean that:-

a. Oxidation of respiratory substrate consumed less O_2 than CO_2 released
b. Oxidation of respiratory substrate consumed more O_2 than CO_2 produced
c. Organic acids are used as respiratory substrate
d. Carbohydrates are used as respiratory substrate

44. Damage of thymus in a child may lead to:-

a. Reduction of haemoglobin content of blood
b. Reduction in stem cell production
c. Loss of cell-mediated immunity
d. Loss of antibody-mediated immunity

45. Ornithine cycle is found in:-

a. Kidney
b. Liver
c. Muscles
d. Heart

46. "All or none law" is associated with:-

a. Muscle fibre
b. Neuron
c. Uriniferous tubules
d. Cardiac muscles

47. Which of the following is the example of conditioned reflex?

a. Eyes closed when anything tends to enter
b. Hand withdrawn when pricked with needle
c. Your kneeing to lift a stone to run away a dog
d. Ingested food goes forward in gut

48. The flowering plant placed under dicots but lacks cotyledons is:-

a. Cuscuta
b. Linseed
c. Mustard
d. Maize

49. The body of the ovule is fused with funicle at appoint called:-

a. Chalaza
b. Hilum
c. Micropyle
d. Integuments

50. Population growth curve is sigmoid, if the growth pattern is:-

a. Accretionary
b. Geometric
c. Exponential
d. Logistic

51. The stele consists of:-

a. Vascular bundle and pith
b. Vascular bundles only
c. Endodermis, pericycle, vascular bundle and pith
d. Pericycle, vascular bundle and pith

52. The double helix of DNA is made of polynucleotide chains wherein backbone constituted by sugar-phosphate and the bases are projected:-

a. Inside
b. One base inside and the other outside
c. Outside
d. Bases remain in line of sugar phosphate

53. Oral contraceptive prevents pregnancy by:-

a. Killing the ovum
b. Preventing implantation
c. Preventing ovulation
d. Blocking fertilization

54. The inspiratory reserve volume + tidal volume+ expiratory reserve volume is the same as:-

a. Inspiratory capacity + functional residual capacity
b. Inspiratory capacity + expiratory reserve volume
c. Total lung capacity - functional residual capacity
d. Inspiratory capacity + residual volume

55. Pulse is a direct measure of:-

a. Cardiac output
b. Blood pressure
c. Stroke volume
d. Heart rate

56. Wing of pigeon is homologous to the:-

a. Tail of rabbit
b. Fore-leg of horse
c. Wing of butterfly
d. Ear of bat

57. During the metaphase stage of mitosis, spindle fibres attach to chromosome at:-

a. Both centromere and kinetochore
b. Kinetochore
c. Centromere, kinetochore and areas adjoining centromere
d. Centromere

58. The plant body is thalloid in:-

a. Funaria
b. Salvinia
c. Marchantia
d. Sphagnum

59. Meristematic tissue responsible for increase in girth of tree trunk is:-

a. Apical meristem
b. Intercalary meristem
c. Lateral meristem
d. Phellogen

60. Which one of the following is a hallucinogenic drug?

a. Lysergic acid diethylamide
b. Caffeine
c. Opium
d. Morphine

61. Which of the following is a primary consumer in maize field ecosystem?

a. Lion
b. Grasshopper
c. Wolf
d. Phytoplankton

62. Syngamy can occur outside the body of the organism in:-

a. Mosses
b. Fungi
c. Algae
d. Ferns

63. Which organization publishes the Red Data Book?

a. GEF
b. WWF
c. IUCN
d. UNEP

64. Asthma is characterized by:-

a. Pains in lungs
b. Spasm in bronchial muscle
c. Alveolar wall degradation
d. Damage in diaphragm

65. The mutation of the type in which a part or the complete gene is removed from the genome is called:-

a. Duplication
b. Deletion
c. Inversion
d. Translocation

66. The bread wheat is:-

a. Triploid
b. Hexaploid
c. Diploid
d. Tetraploid

67. Transplantation of tissues/organs to save certain patients often fails due to rejection of such tissues/ organs by the patient. Which type of immune response is responsible for such rejections?

a. Cell - mediated immune response
b. Humoral immune response
c. Physiological immune response
d. Auto - immune response

68. Himgiri developed by hybridization and selection for disease resistance against rust pathogens is a variety of:-

a. Chilli
b. Sugarcane
c. Maize
d. Wheat

69. Nitrogen is absorbed by plants in the form of:-

a. (a) NO_3
b. (b) NH_3
c. (c) NO_2
d. (d) Both (a) and (c)

70. Thousands of years old mummies are still in their condition as they were before due to non-destruction of:-

a. Collagen fibres
b. White elastin fibres
c. Yellow elastin fibres
d. Veins

71. Bioluminiscence is caused by oxidation of:-

a. Phytochromes
b. Chlorophyll
c. Cytochromes
d. Luciferin

72. Syncitial epidermis is present is:-

a. Metaphire
b. Periplaneta
c. Housefly
d. Ascaris

73. Foramen of Panizzae is found in the heart of:-

a. Crocodile
b. Frog
c. Pigeon
d. Rabbit

74. Nephridia of earthworm war analogous to:-

a. Nematoblasts of Hydra
b. Gills of prawn
c. Traches of insects
d. Flame cells of Planaria

75. Retrogressive metamorphosis is seen in:-

a. Gambusia
b. Herdmania
c. Butterfly
d. Frog

76. Which of the following is true about preen gland?

a. Occur in birds
b. Occur in bats
c. Also known as uropygial gland
d. Help in digestion

77. Epipetalous stamens with free filaments but fused anthers are found in:-

a. Asclepiadaceae
b. Convolvulaceae
c. Solanaceae
d. Asteraceae

78. Rod-shaped elongated thick- walled lignified dead cells found in seed coat of pulses (legumes) are:-

a. Macrosclereids
b. Brachysciereids
c. Osteosclereids
d. Astrosdereids

79. Antibodies are:-

a. Immunoglobulins
b. Globular proteins
c. Carbohydrates
d. None of the above

80. Treatment with alloxan kills:-

a. Sertoli cells
b. B-cells of islets of Langerhans
c. Leydig cells
d. STH cells

81. The ratio of WBCs: RBCs in Blood is:-

a. 1000 : 1
b. 1 : 1000
c. 1 : 600
d. 600 : 1

82. The breakdown products of haemoglobin are:-

a. Sodium glycocholate
b. Cholesterol
c. Sodium taurocholate
d. Biliverdin and Bilirubin

83. Aponeuroses is a kind of:-

a. Regularly arranged elastic fibres
b. A nerve disease
c. Regularly arranged collagen fibres
d. Regularly arranged nerve fibres

84. An individual has a number of different types of cells was first stated by:-

a. Schleiden and Schwann
b. Dujardin
c. Robert Brown
d. Dutrochet

85. Which statement is correct for biomolecules?

a. Sequence of amino acids determine primary structure of protein
b. DNA is a polymer of ribonucleotides
c. RNA is single stranded and contains different purine bases other than in DNA
d. All carbohydrates breakdown into glucose

86. The following question consist of two statements each: assertion (A) and reason (R). To answer the question, mark the correct alternative as directed below:-

Assertion: Chromosomal aberration leads to an alteration in structural organization of the chromosome
Reason: The chromosome change can be observed microscopically

a. If A is true but R is false
b. If both A and R are false
c. If both A and R are true and R is the correct explanation of A
d. If both A and R are true but R is not the correct explanation of A

87. The following question consist of two statements each: assertion (A) and reason (R). To answer the question, mark the correct alternative as directed below:-

Assertion: End products of alcoholic fermentation are ethanol and CO_2
Reason: Pyruvic acid is first decarboxylated to acetaldehyde which in turn is converted into ethanol

a. If both A and R are true and R is the correct explanation of A
b. If both A and R are false
c. If both A and R are true but R is not the correct explanation of A
d. If A is true but R is false

88. The following question consist of two statements each: assertion (A) and reason (R). To answer the question, mark the correct alternative as directed below:-

Assertion: Epinephrine is called as emergency hormone
Reason: Stimulation of the sympathetic nerves to adrenal medulla causes release of large quantities of adrenaline and noradrenaline into the blood

a. If both A and R are true but R is not the correct explanation of A
b. If A is true but R is false
c. If both A and R are false
d. If both A and R are true and R is the correct explanation of A

89. The following question consist of two statements each: assertion (A) and reason (R). To answer the question, mark the correct alternative as directed below:-

Assertion: The process of clotting can occur in absence of all cellular elements except platelets
Reason: Activated platelets release vitamin K

a. If both A and R are false
b. If both A and R are true but R is not the correct explanation of A
c. If A is true but R is false
d. If both A and R are true and R is the correct explanation of A

90. The following question consist of two statements each: assertion (A) and reason (R). To answer the question, mark the correct alternative as directed below:-

Assertion: Removal of apical bud in a plant causes sprout of lateral buds and produces dense bushy growth
Reason: Apical bud releases auxins which inhibits the growth of lateral buds

a. If both A and R are true and R is the correct explanation of A
b. If both A and R are false
c. If both A and R are true but R is not the correct explanation of A
d. If A is true but R is false

02 Feedback

91. How was the overall experience while giving the test?

a. Excellent
b. Very Good
c. Good
d. Average