

Biology

1. Vernalisation is
 - 1) Low pH treatment
 - 2) Low temp treatment
 - 3) High temp treatment
 - 4) High pH treatment

2. Synaptonemal Complex is formed
 - 1) During Anaphase
 - 2) During Metaphase
 - 3) During Prophase II
 - 4) During Prophase I of meiosis

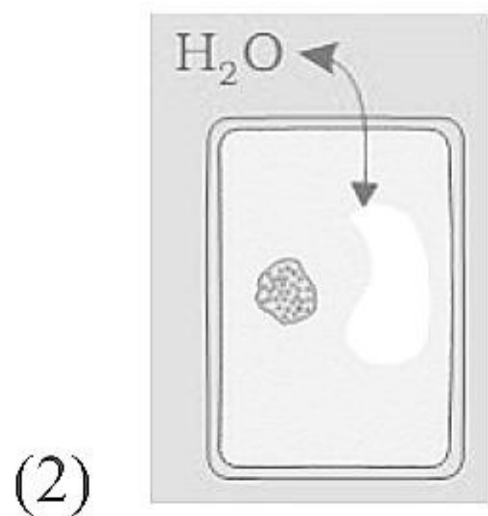
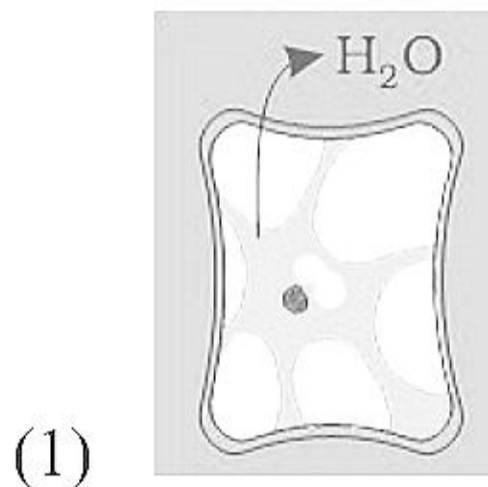
3. Some organisms are poisonous or colored (red or black) in order to protect themselves from predator is called as
- 1) Mutualistic mimicry
 - 2) Batesian mimicry
 - 3) Mullerian mimicry
 - 4) Predation mimicry
4. Which of the following is similar in DNA of elephant and mango tree
- 1) Size of DNA
 - 2) Type of nucleotide
 - 3) Sequence of nucleotide
 - 4) Total bases
5. Which of the following is not a micronutrient?
- 1) B
 - 2) Zn
 - 3) Mn
 - 4) Mg
6. Inhibitory effect of O_2 on photosynthesis is

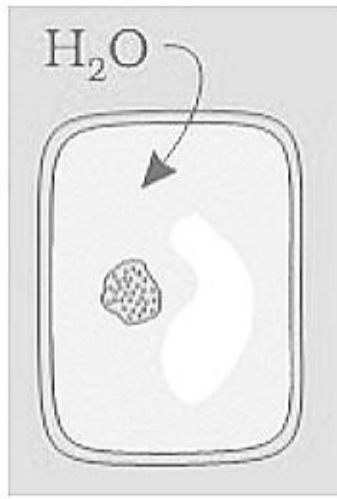
- 1) CAM pathway
- 2) Photorespiration
- 3) Fermentation
- 4) Krebs cycle

7. Eutrophication is caused due to

- (1) accumulation of minerals
- (2) effect of UV-C
- (3) accumulation of metals only
- (4) accumulation of Zooplankton

8. Cell placed in hypertonic solution is shown by





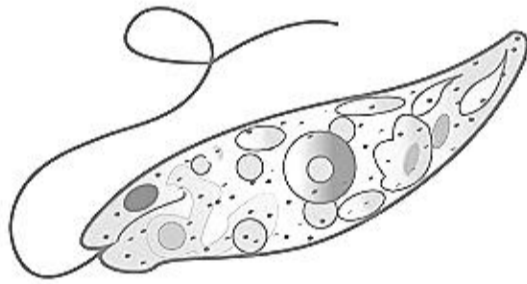
(3)

(4) Both (1) and (3)

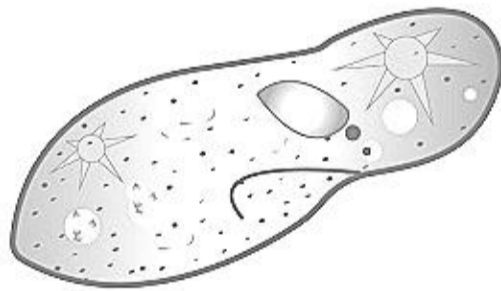
9. Identify the diagram of heterocyst.



(1)



(2)



(3)



(4)

10. tRNA binds to mRNA through

- (1) Anticodon loop
- (2) TΨC loop
- (3) Amino acid binding loop
- (4) D loop

11. Chaperones' function is

- (1) Hydrogen bonding
- (2) Folding of protein
- (3) modification of protein
- (4) Proteolytic cleavage

12. Chl b differs from chl a by

- (1) $-\text{CH}_3$ group
- (2) CHO group
- (3) COOH group
- (4) CH_2OH group

13. What can be same in a mango/*Mangifera indica* cell and human/*Homo sapiens* cells

- (1) Nucleosides used in DNA
- (2) DNA base sequence

- (3) DNA length
- (4) mRNA sequence

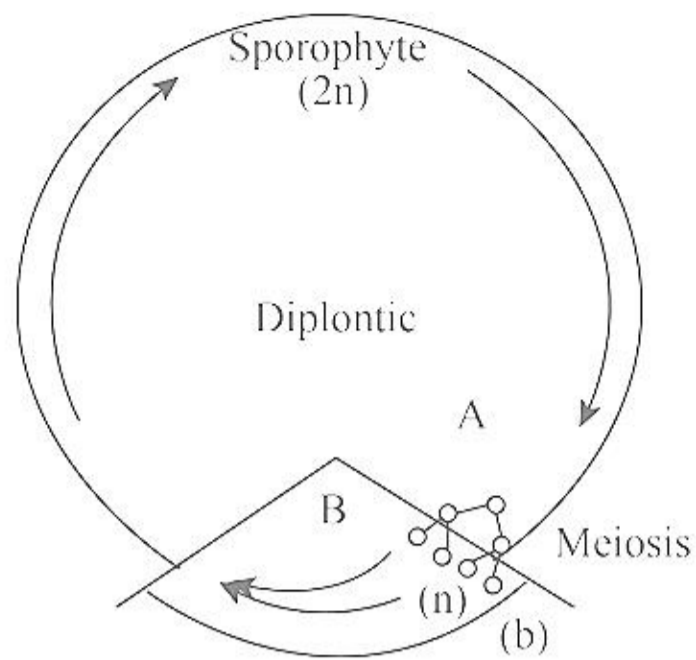
14. Dendrochronometer is used to measure/count

- (1) Ring in tree for age measurement
- (2) width of tree
- (3) length of trees
- (4) types of wood

15. Find odd one out

- (1) stamen
- (2) stigma
- (3) style
- (4) ovary

16. Diagram is of



- (1) Sporic meiosis
- (2) Zygotic meiosis
- (3) Gametic meiosis
- (4) Brachymeiosis

17. Gynaecomastia is present in which syndrome?

- (1) Turner
- (2) Klinefelter
- (3) Down
- (4) None

18. Which one is the oldest in following?

- (1) Gymnosperms
- (2) Angiosperms
- (3) Bryophytes

(4) None

19. Which is called the amphibians of plant kingdom?

- (1) Angiosperms
- (2) Gymnosperms
- (3) Bryophytes
- (4) Pteridophytes

20. Hardest substance in plant kingdom is

- (1) Sepal
- (2) Corolla
- (3) Sporopollenin
- (4) Anther

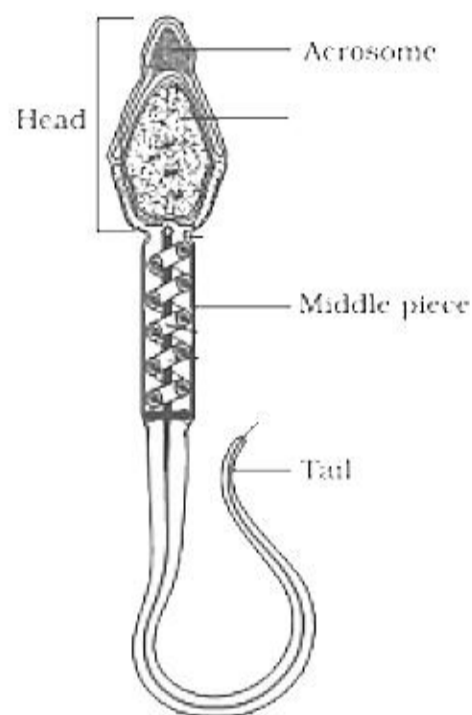
21. What it is called when thousands of aquatic species are killed over a wide range in sea.

- (1) Bateson-effect
- (2) El Nino effect
- (3) Warburg effect
- (4) None

22. Dark reaction–

- (1) In light
- (2) In dark
- (3) Requires product of light reaction
- (4) All of these

23. Which one of the labelled part utilizes fructose as a source of energy:



- (1) Head
- (2) Tail
- (3) Acrosome
- (4) Middle piece

24. Among the following choose the correct epimers :

- (1) Glucose, galactose
- (2) Glucose, Fructose
- (3) Glucose, ribose
- (4) Gluconic acid, glucose

25. In gluconeogenesis, which of the following cannot acts as substrate

- (1) Fructose
- (2) Palmitic acid
- (3) Glycine
- (4) Glycerol

26. Choose correct option for larva of housefly

- (1) Grub
- (2) Cypris
- (3) Maggot
- (4) Wiggler

27. Traditional anesthesia is obtained from

- (1) Datura
- (2) Poppy

- (3) Cannabis
- (4) Erythrocytulum

28. Band 3 protein in RBC has the function of

- (1) It mediates the exchange of cellular HCO_3^- with Cl^- in plasma
- (2) It is a cytoplasmic protein
- (3) It mediates the exchange of cations between cell and plasma
- (4) Both (1) and (2)

29. Taut form of Haemoglobin is favoured by

- (1) High partial pressure of O_2
- (2) High pH
- (3) High PCO_2
- (4) Low level of 2,3-BPG

30. Number of chromosomes present in secondary spermatocyte is

- (1) 22
- (2) 23
- (3) 24

(4) 25

31. Choose incorrect statement

- (1) Deuterostomes show radial and indeterminate cleavage
- (2) Deuterostomes show spiral and indeterminate cleavage
- (3) Protostomes show radial and determinate cleavage
- (4) Protostomes show spiral and indeterminate cleavage

32. Flame cells are present in

- (1) Aschelminthes
- (2) Platyhelminthes
- (3) Annelida
- (4) Cephalochordate

33. Reduced coelom is found in

- (1) Annelida
- (2) Echinodermata
- (3) Mollusca
- (4) Platyhelminthes

34. Level of progesterone is highest

- (1) Just before the ovulation
- (2) Just after the ovulation
- (3) 7 days after ovulation
- (4) During menstrual bleeding phase

35. Which of the following is not considered as a secondary messenger

- (1) Acetyl choline
- (2) cAMP
- (3) Ca^{2+}
- (4) Diacylglycerol

36. Coacervates were discovered by

- (1) Huxley
- (2) Fox
- (3) Oparin
- (4) Miller

37. Length of the spinal cord is

- (1) 30 cm
- (2) 25 cm

(3) 55 cm

(4) 45 cm

38. Atlas is

(1) 1st cervical vertebrae

(2) 2nd cervical vertebrae

(3) 1st thoracic vertebrae

(4) 2nd Lumbar vertebrae

39. Which embryonic layer is responsible for gaseous exchange

(1) Amnion

(2) Yolk sac

(3) Chorion

(4) All of the above

40. Choose the correct regarding antibodies

(1) IgA–Helps in allergic reaction

(2) IgG–Cross placenta

(3) IgE–Found in secretions

(4) IgM–exist as Dimer

41. Which of the following is uricotelic
- (1) Insects
 - (2) Birds
 - (3) Lizards
 - (4) All
42. In Annealing
- (1) Primers anneal to the DNA template
 - (2) Taq polymerase adds nucleotides to the annealed primer
 - (3) Two strands of the DNA separate
 - (4) Temperature is 92°C
43. Which is the first step in PCR cycle
- (1) Denaturation
 - (2) Extension
 - (3) Annealing
 - (4) None
44. Hypothalamus can regulate
- (1) Anger
 - (2) Patience

- (3) Thermoregulation
- (4) Pleasure

45. In DNA 20% bases are adenine. What percentage of bases are pyrimidines?

- (1) 30%
- (2) 60%
- (3) 50%
- (4) 20%

46. Typhoid is caused by :

- (1) Pneumonia
- (2) filarial worm
- (3) Salmonella typhi
- (4) None

47. Reproduction without actual fertilization is called as :

- (1) Parthenogenesis
- (2) Parthenocarpy
- (3) Pseudo-reproduction
- (4) All of the above

48. Radula is a part of which animal :

- (1) Mollusca
- (2) Poriferans
- (3) Coelenterata
- (4) Annelida

49. Length of fallopian tube in female is:

- (1) 40 cm
- (2) 30 cm
- (3) 12 cm
- (4) 15 cm

50. Which is also called molecular glue:

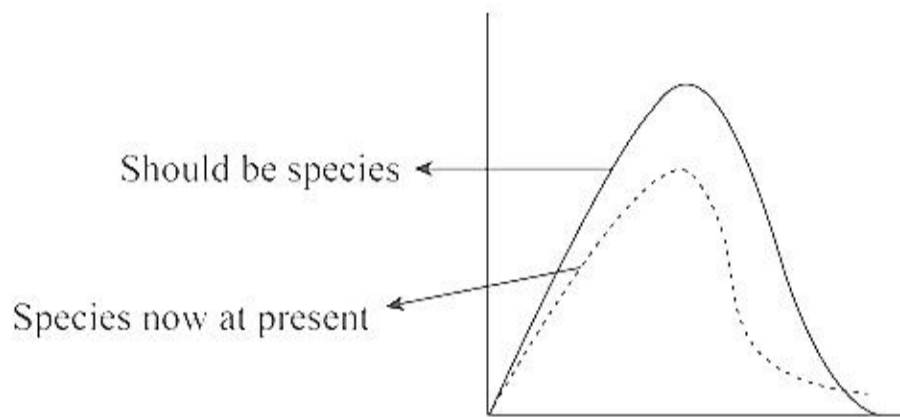
- (1) DNA Gyrase
- (2) DNA Helicase
- (3) DNA Ligase
- (4) DNA Polymerase

51. Which one of them is odd with respect to Human male :

- (1) Absence of one X chromosome

- (2) Addition of one X chromosome
- (3) Presence of XY chromosome
- (4) Absence of barr body

52. Which type of evolution is shown by the given graph?



- (1) Disruptive
 - (2) Destructive
 - (3) Competitive
 - (4) Stabilising
53. Which of the following pair is correctly matched?
- (1) Cartilaginous - Skull bones joint
 - (2) Hinge joint - Between vertebrae
 - (3) Fibrous joint - Between phalanges
 - (4) Gliding joint - Between zygapo-physes of the successive vertebrae

54. In some organisms, karyokinesis is not followed by cytokinesis as a result of which multinucleate condition arises leading to the formation of syncytium. The perfect example for this is
- (1) appearance of a furrow in cell membrane.
 - (2) liquid endosperm in coconut.
 - (3) sexual reproduction.
 - (4) fertilisation.
55. Which one of the following is not a correct pair of type of cancer and origin place?
- (1) Benign tumour - Non - cancerous tumour
 - (2) Carcinoma - Cancer of epithelial tissues
 - (3) Lymphoma - Haematopoietic cells tumour
 - (4) Sarcoma - Cancer of glands (secretory tissues).
56. Which of the following statements are **correct**?
- (i) Solution culture/hydroponics contains all essential minerals except one, the usefulness of which is to be determined.
 - (ii) Na, Si, Co and selenium are beneficial element required by higher plants.

(iii) Zn is the activator of nitrogenases while Mo is the activator of alcohol dehydrogenase.

(iv) Zn is needed for auxin synthesis.

(1) (i), (ii), (iii)

(2) (i), (ii), (iv)

(3) (i) and (iv)

(4) None of these

57. In nephron, water absorption is maximum in

(1) proximal convoluted tubule (PCT).

(2) ascending limb of Henle.

(3) descending limb of Henle.

(4) distal convoluted tubule (DCT).

58. Sex is determined in human beings

(1) by ovum

(2) at time of fertilisation

(3) 40 days after fertilisation

(4) seventh to eight week when genitals differentiate in foetus.

59. Match the description (given in column I) with correct stage of prophase I (given column II) and choose the correct option.

Column I	Column II
A. Chromosomes are moved to spindle fibre	I. Pachytene
B. Centromere splits and chromatids move apart	II. Zygotene
C. Pairing between homologous chromosomes takes place	III. Anaphase
D. Crossing between homologous chromosomes	IV. Metaphase

- (1) A-I; B-II; C-III; D-IV
- (2) A-II; B-III; C-IV; D-I
- (3) A-IV; B-III; C-II; D-I
- (4) A-III; B-I; C-IV; D-II

60. Hirudin is :

- (1) a protein produced by *Hordeum vulgare*, which is rich in lysine.

- (2) a toxic molecule isolated from *Gossypium hisutum*, which reduces human fertility.
- (3) a protein produced from transgenic *Brassica napus*, which prevents blood clotting.
- (4) an antibiotic produced by a genetically engineered bacterium, *Escherichia coli*.