

Biology

1. Mayr's biological species concept emphasizes on but the
 1. geographical isolation
 2. reproductive isolation
 3. physiological isolation
 4. cytological isolation
2. Monera devoid of cell wall are
 1. Actinomycetes
 2. Cyanobacteria
 3. Mycoplasma
 4. Eubacteria
3. Which of the following pair of plants is seed producers?
 1. Funaria and Ferns
 2. Funaria and Ficus
 3. Pisum and Pinus
 4. Ficus and Chlamydomonas
4. Which of the following respire with gills?
 1. Frog
 2. Prawn
 3. Whale
 4. Crocodile
5. Consider the following statements.
A: In racemose inflorescence, flowers are basipetally arranged
B: Epigynous flowers are seen in rose plant
C: In brinjal, ovary is superior
Of these statements
 1. A and B are true but C is false
 2. A and C are true but B is false
 3. A and B are false but C is true
 4. A and C are false but B is true
6. In a vascular bundle, if protoxylem is towards pericycle and metaxylem is towards the centre, the condition is referred to as
 1. closed
 2. endarch
 3. exarch
 4. open

7. Find out the wrong match.

1. Monocytes - secrete heparin
2. Neutrophils -phagocytic and destroy foreign organisms
3. Eosinophils- allergic response
4. Basophils - secrete histamine and serotonin

8. Which of the following correctly matches an organelle with its function?

1. Lysosomo - secretion
2. Ribosome · lipid synthesis
3. Nucleolus - photosynthesis
4. Mitochondria - cellular respiration

9. Match the biological molecules listed under column I with their biological functions listed under column II Choose the answer which gives the correct combination of the alphabets of the two columns

Column 1 (Biological molecules)	Column II (Functions)
A. Glycogen	p. Hormone
B. Globulin	q. biocatalyst
C. Steroids	r. Antibody
D. Thrombin	s. storage production

1. A-q, B - s, C = r, D-p
2. A-s, B-r, C=p, D-q
3. A-r, B-q, C-s, D-p
4. A=s , B = q, C = P, D-r

10. The major event that occurs during the anaphase of mitosis which brings about the equal distribution of chromosomes is

1. splitting of the chromatids
2. splitting of the centromeres
3. condensation of chromatin
4. replication of the genetic material

11. Transpiration facilitates

1. absorption of water by roots
2. excretion of minerals
3. electrolyte balance
4. opening of stomata

12. The most abundant element present in plants is

1. carbon
2. nitrogen
3. manganese
4. iron

13. Which pigment of plant actually participate in light reaction of photosynthesis?

1. Xanthophyll-a
2. Chlorophyll-a
3. Carotene
4. Phycoxanthin

14. Which of the following takes place in Kreb's cycle?

1. Complete oxidation of acetyl CoA into CO₂ and H₂O
2. Complete reduction of acetyl CoA into CO₂ and H₂O
3. Complete oxidation of acetyl CoA into CO₂ and H₂O with synthesis of ATP by ETS
4. Complete oxidation of citric acid into water.

15. 'Fruit ripening hormone' is

1. Auxin
2. Cytokinin
3. Ethylene
4. ABA

16. If for some reason, the parietal cells of the gut epithelium become partially non-functional, what is likely to happen?

1. The pancreatic enzymes specially trypsin and lipase will not work efficiently.
2. The pH of stomach and will fall abruptly
3. Steapsin will be more effective
4. Proteins will not be adequately hydrolysed by pepsin into proteoses and peptones

17. Under a given oxygen concentration in blood, dissociation of oxyhaemoglobin will increase if

1. pH of blood rises
2. pH of blood falls
3. concentration of Co, falls
4. free fatty acid concentration in blood falls

18. Given these structures of the conduction system of the heart: a. Atrioventricular bundle b. AV node c. Bundle branches d. Purkinje fibres e. SA node

choose the arrangement that lists the structures in an order of an action potential passes through them.

1. b,e,c,a,d
2. e,b,a,c,d
3. b,e,a,c,d
4. e,b,d,a,c

19. Match the excretory functions of column I with the parts of the excretory system in column II. Choose the correct combination from the answers given below.

Column I (Functions)	Column II (Parts of excretory system)
A. Ultra filtration	p. Henle's loop
B. Concentration of urine	q. Ureter
C. Transport of urine	r. Urinary bladder
D. Storage of urine	s. Malpighian Corpuscle
	t. proximal convoluted tubules

1. A= s, B=p , C=q , D=r
2. A= s, B=r , C=q , D=q
3. A=t , B=s , C= a, D=r
4. A=s , B=t , C=q , D=r

20. Striated muscles contract because of the

1. sliding of myosin filaments on actin filaments
2. sliding of actin filaments on myosin filaments
3. myosin filaments coming close to each other
4. actin filaments coming close to each other.

21. During the depolarization phase of an action potential, the permeability of the axon membrane

1. to K is greatly increased
2. to Ca' is greatly increased
3. to Na' is greatly increased
4. is unchanged

22. Given these structures of an eye

- a. lens
- b. Aqueous humor
- c. Vitreous humor
- d. Cornea

Choose the correct sequence of the pathway of light from outside to inside the eye ball

- 1. d, b, a, c
- 2. a, b, c, d
- 3. d, c, b, a
- 4. a, d, b, c

23. Match the hormone in the List I with the function in the List II and choose the correct alternative,

List I (Hormone)	List II(Functions)
A.Vasopressin	p. stimulation of uterine contraction
B.ACTH	q. Testosterone production
C.Oxytocin	r. Antidiuresis
D.Prolactin	s. Stimulation of milk production
E.ICSH	t.Adrenal cortex stimulation

- 1. A - p, B = r, C = s, D-q, E =t
- 2. A-r, B = t, C=p, D = s, E = q
- 3. A-r, B -q, C = p, D = t, E=s
- 4. A-s, B = t, C-q, D-p, K-r

24. Which one of the following pollinations is autogamous?

- 1. Geitonogamy
- 2. Xenopany
- 3. Chamogamy
- 4. Cleistogamy

25 Thpetum is a part of

- 1. male gametophyte
- 2. female gametophyte
- 3. ovary wall
- 4. anther wall

26. Find out the correct sequence in embryonk development of animal

- 1. Cleavage, zygote, fertilization, monula, blastula, gastrula
- 2. Fertilization, Zygote, cleavage, Morula, blastula, gastrula
- 3. Fertilization, cleavage, morula, zygote, blasluta, gastrula

4. Fertilization, zygote, blastula, morula, cleavage, gastrula

27. The test tube programme mostly employs which one of the following techniques?

1. Intra cytoplasmic sperm Injection (ICSI)
2. Intrauterine insemination (IUT)
3. Gamete Intra Fallopian Ttransfer (GIFT)
4. ZygoteIntra Fallopian Transfer (ZIFT)

28. Which of the following crosses and resultant phenotypic ratios are mismatched?

	Cross	Phenotypic ratio
1	Tt Tt	3:1
2	Tt tt	2:1
3	TtYy ttyy	1:1:1:1
4	TtYy TtYy	9:3:3:1`

29. Match the following

Sct-1	Set – II
A Chargaff	p Franklin and Wilkins
B. Replicon	q Uptake of lactose
C. Permease	r hn-RNA
D. Split gene	s Length of DNA
E X-ray diffraction	t A+G-C+1

1. A-t,B-s C-q, D-r, E-p
2. A-t,B-s, C-P,D-r, E-q
3. A-t,B-s, C-q, D-p, E-r
4. A-t,B-P,C-q, D-r E-s

30. Which one provides correct sequence of events in origin of species according to Darwinism?

A. Natural selection B. Variations C. Survival of the fittest D. Struggle for existence

1. A, B, C, D
2. B, D, C, A
3. D, B, C, A
4. B, C,A, D

31. Match the disease in column I with the appropriate items (Pathogen/Prevention Treatment) in column II

Column I	Column II
A Amoebiasis	p <i>Treponema pallidum</i>
B Diphtheria	q Use only sterilized food and water
C Cholera	r DPT vaccine
D Syphilis	S Use oral rehydration therapy

1. A=q, B = r, C = s, D-p
2. A-p, B-q, C-r, D-s
3. A-q, B-S,C-p, D-r
4. A-q, B-p, C-r, D=s

32. Best bio fertilizer for paddy fields is

1. Rhizobium
2. Azolla
3. Anthoceros
4. Azotobacter

33. Which pair is wrongly matched?

1. Yeast - Ethanol
2. Streptomyces - Antibiotics
3. Aspergillus - Vinegar
4. Methanogens - Gobar gas

34. The enzymes essential for r-DNA technology are

1. helicases and gyrases
2. transcriptase and reverse transcriptase
3. endonuclease and ligase
4. DNA polymerase

35. The Bt-toxin is not toxic to human beings because

1. the pro Bt-toxine inactivation requires temperature above human body temperature,
2. the Bt-toxin recognizes only insect specific target.
3. the Bt-toxin formation from pro-Bt-toxin requires pH lower than that present in the human stomach
4. conversion of pro Bt-toxin to Bt-toxin takes place only in highly alkaline conditions.

36. American water weed that has become a noxious weed for ponds and lakes of India is

1. Lantana camara
2. Eichhornia crassipes
3. Parthenium hysterophorus
4. Nelumbo nucifera

37. Which one of the following statements is correct?

1. Producers produce energy
2. Consumers consume energy
3. Decomposers decompose energy
4. Producers transform energy

38. Index of atmospheric purity is

1. ferns
2. algae
3. fungi
4. lichens

39. Identify the correct match pair bowl

1. Rann of Kutch - Wild ass stolos
2. Corbett national park - Aves
3. Kaziranga - Elephants
4. A Gir forest - Rhinos

40. *Oryza sativa* is the binomial name of rice plant, the “*sativa*” stands for

1. Specific name
2. Specific epithet
3. Species name
4. Specific nomenclature

41. How many ova and sperms will be produced from 100 secondary oocytes and 100 secondary spermatozoa during gametogenesis in man?

1. 50 ova, 100 sperms
2. 100 ova, 100 sperms
3. 200 ova, 200 sperms
4. 100 ova, 200 sperms

42. Copper-Toop

1. acts as a barrier
2. prevents cleavage
3. suppresses fertilization

4. prevents implantation of blastocysts.

43. A dwarf pea plant was treated with gibberellic acid, It grows as a pure tall pea plant. If the treated plant is crossed with a pure tall plant, the phenotypic ratio of F₂ is likely to be

1. all tall but hybrid
2. all dwarf
3. 50 % tall and 50% dwarf
4. All pure tall

44. Which of the following is the Pribnow box?

1. 5' TAATTA3'
2. 5'AATAAT3'
3. 5'TATAAT3'
4. 5'ATATTA3'

45. The best description of natural selection is

1. the survival of the fittest
2. the struggle for existence
3. a change in the proportion of variation within a population
4. the reproductive success of the members of a population best adapted to the environment.

46. Assertion (A): Cancer cells are virtually immortal until the body in which they reside dies.

Reason (R) : Cancer is caused by damage to genes regulating the cell division cycle

1. Both (A) and (R) are true and the (R) is the correct explanation of (A)
2. Both (A) and (R) are true but the (R) is not the correct explanation of (A)
3. (A) is true but (R) is false
4. Both (A) and (R) are false

47. Green revolution has been possible due to development of high yielding of

1. wheat and rice
2. apples and pears
3. jowar and bajra
4. sugarcane and grams

48. In taxonomy, order comes in between

1. Family and genus
2. Class and family
3. Phylum and class
4. Kingdom and phylum

49. In genetic fingerprinting, the 'probe' refers to

1. a radioactive, labelled single stranded DNA molecule
2. a radioactive labelled single stranded RNA molecule
3. a radioactive labelled double stranded DNA molecule
4. a radioactive labelled double stranded RNA molecule.

50. If a person shows production of interferons in his body, the chances are that he has got infection of

1. typhoid
2. tetanus
3. malaria
4. measles

51. Antibiotic producing fungi inhibit the growth of other microbes in their closed vicinity, thus they show

1. amensalism
2. commensalism
3. parasitism
4. predation

52. A correct food chain is

1. Grass → Grasshopper → Frog
2. Grass → Fox → Rat
3. Grass → Elephant → Camel
4. Phytoplankton → Zoo plankton → Frog

53. A lake near a village suffered heavy mortality of fishes within a few days. Consider the following reasons for this

A. Lots of urea and phosphate fertilizers were used on the crops in the vicinity

B. Urea was sprayed along with DDT by an aircraft

C. The lake water turns green and stinky

D. Phytoplankton population in the lake declines initially thereby greatly reducing photosynthesis.

Which two of the above were the main causes of fish mortality in the lake?

1. A and C
2. A and B

3. B and C
4. C and D

54. Red Data Book contains the list of

1. natural resources
2. forests and grasslands
3. endangered flora and fauna
4. distributional pattern of wildlife flora and fauna

55. Match the items listed under columns I and II

	Column I	Column II
1.	<i>Triticum</i>	<i>indica</i>
2.	<i>Mangifera</i>	<i>melongena</i>
3.	<i>Musca</i>	<i>aestivum</i>
4.	<i>Solanum</i>	<i>domestica</i>

Select the correct option among the following

	1	2	3	4
1	Ii	iii	i	iv
2	Iv	ii	ii	i
3	Iii	i	iv	ii
4	Iv	iii	ii	I

56. Which taxonomic term may be suggested for any rank in the classification

1. Class
2. Order
3. Species
4. taxon

57. The enzyme amino acyl synthetase facilitates

1. joining two neighbouring amino acids on ribosomes
2. insertion of amino-acyl tRNA into the ribosome sites
3. adoption of amino acid by a tRNA molecule of its type
4. transfer of amino acyl 1-RNA from the ribosomal site to P site.

58. Match the type of bacteria listed in column I with their activity given in Column II. Choose the correct combination of alphabets of the two columns

	Column I	Column II
A	<i>Streptomyces</i>	Food poisoning
B	<i>Rhizobium</i>	2 Source of antibiotics
C	Nitrosomonas	3 Nitrogen fixation
D	<i>Acetobacter</i>	4 Nitrification
		5 Vinegar synthesis

- a. A-2, B-3, C-1, D-5
- b. A-2, B-3, C-4, D-5
- c. A-4, B-5, C-1, D-3
- d. A-5, B-1, C-3, D-4

59. The Mycoplasma

1. lack cell wall
2. is smallest living cell
3. can survive without oxygen
4. are all the above

60. DPT vaccine is given for

1. Tetanus, polio, plague
2. Diphtheria, whooping cough, tetanus
3. Diarrhoea, polio, typhoid
4. Diphtheria, polio, tetanus

SET 13

1. Artificial hybridization is the transfer of pollen grains to the stigma from
 1. **the flower with desired traits**
 2. the same flower
 3. any flower
 4. none of the above
2. The correct sequence in the evolution of modern man
 1. **Dryopithecus → Australopithecus → Homo habilis → Homo erectus → Homo sapiens**
 2. Homo habilis → Dryopithecus → Australopithecus → Homo erectus → Homo sapiens
 3. Australopithecus → Dryopithecus → Homo habilis → Homo erectus → Homo sapiens
 4. Dryopithecus → Homo habilis → Australopithecus → Homo erectus → Homo sapiens
3. Human Insulin is being commercially produced from
 1. Saccharomyces
 2. Rhizobium
 3. **Eschenchia**
 4. Mycobacterium
4. A 'transcription unit' in DNA is defined primarily by the
 - i. promoter
 - ii. Structural genes
 - iii. Okazaki fragments
 - iv. Adenylate residues
 - v. terminator
 1. **, (ii) and (v) only**
 2. (i), (iii) and (v) only
 3. (iii), (iv) and (v) only
 4. (i), (iv) and (v) only
5. Which of the following sugars cannot be hydrolyzed further to yield simple sugars?
 1. **Ribose**
 2. Maltose
 3. Sucrose
 4. Lactose