

BIOLOGY

- 1) Choose the correct option out of the following.
 - (A) Butyric acid - *Clostridium butylicum*
 - (B) Acetic acid - *Aspergillus niger*
 - (C) Streptokinase - immunosuppressive agent in organ transplant
 - (D) Cyclosporine A - used as a 'clot buster' for removing clots from blood vessels

- 2) What is the BOD value per litre in sewage water?
 - (A) 400 - 500 mg
 - (B) 200 - 500 mg
 - (C) 200 - 400 mg
 - (D) 500 - 600 mg

- 3) Which statements are true out of the following?
 - (P) Endonuclease make cuts at specific positions within the DNA
 - (Q) A stirred - tank reactor is usually square in shape
 - (R) Bacterial cells must be first be made competent to take up DNA. This is done by treating them with divalent cation Mg^{++} .
 - (A) Statement P is true
 - (B) Statements Q, R are true
 - (C) Statements P, Q are true
 - (D) Statements P, Q & R are true

(Space for Rough Work)

4) Statement A - DNA cannot pass through cell membrane

Reason R - DNA is a hydrophobic molecule

(A) Statement A is correct and Reason R is wrong

(B) Statement A and Reason R both are correct because R is not the explanation of A

(C) Statement A and Reason R both are correct because R is the explanation of A

(D) Statement A is wrong and Reason R is correct

5) The Fragments of DNA can be separated by a technique known as _____.

(A) Gel electrophoresis

(B) Micro injection

(C) Gene gun

(D) Biolistics

6) _____ infects the roots of tobacco plants and causes a great reduction in yield.

(A) *Wuchereria bancrofti*

(B) *Bacillus thuringiensis*

(C) *Meloidogyne incognita*

(D) *Ascaris lumbricoides*

(Space for Rough Work)

- 7) In some children ADA deficiency can be cured by which transplantation?
- (A) Bone marrow
 - (B) Liver
 - (C) Kidney
 - (D) Spleen
- 8) In Rosie cow, which is nutritionally more balanced product for babies?
- (A) Beta - lactalbumin
 - (B) Alpha - lactalbumin
 - (C) Albumin
 - (D) Immunoglobulin
- 9) In which region maximum and minimum, mean annual precipitation is observed respectively?
- (A) Grassland, Desert
 - (B) Tropical forest, Temperate forest
 - (C) Tropical forest, Desert
 - (D) Coniferous forest, Temperate forest

(Space for Rough Work)

- 10) Which animal is capable of meeting all its water requirements through its internal fat oxidation?
- (A) Kangaroo rat
 - (B) Snail
 - (C) Kangaroo
 - (D) Rat
- 11) If you were to count the number of insects feeding on a big tree, what kind of pyramid would you get?
- (A) Oblique
 - (B) Inverted
 - (C) Upright
 - (D) Upright - inverted
- 12) Which stage of plant succession stage is shown in the given diagram?



- (A) Phytoplankton
- (B) Submerged plant stage
- (C) Reed - swamp stage
- (D) Submerged free floating plant stage

(Space for Rough Work)

- 13) "That within a region species richness increased with increasing explored area, but only upto a limit." Which naturalist has proposed this statement?
- (A) Paul Ehrlich
 - (B) David Tilman
 - (C) Alexander von Humboldt
 - (D) Trashow
- 14) Which species extinction in the last 500 years was due to over exploitation by humans?
- (A) Quagga
 - (B) Dodo
 - (C) Steller's sea cow
 - (D) Thylacine
- 15) Which nutrient is absent in dirty water of sewage?
- (A) Nitrate
 - (B) Ammonia
 - (C) Sodium
 - (D) Copper
- 16) What is the unit of measurement of thickness of ozone layer?
- (A) DU
 - (B) DB
 - (C) DO
 - (D) DN

(Space for Rough Work)

17) Absence of teeth, bifid tongue and mental retardness are observed in _____.

- (A) Down's syndrome
- (B) Albinism
- (C) Klinefelter's syndrome
- (D) Oral-facial-digital syndrome

18) Match the following. Choose the correct option.

	Column - I		Column - II
(i)	Conidia	(P)	Sponges
(ii)	buds	(Q)	Penicillium
(iii)	offset	(R)	Water hyacinth
(iv)	Gemmules	(S)	Hydra

- (A) (i-Q) (ii-S) (iii-R) (iv-P)
- (B) (i-Q) (ii-R) (iii-S) (iv-P)
- (C) (i-P) (ii-S) (iii-R) (iv-Q)
- (D) (i-S) (ii-Q) (iii-P) (iv-R)

19) Chromosome numbers in rice leaf is X and chromosome numbers in egg of rat is Y.

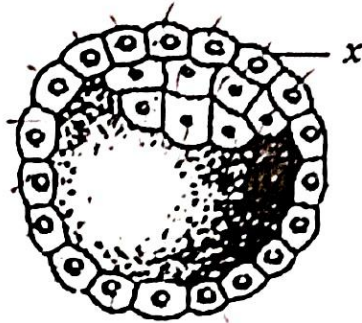
- (A) $X = 34, Y = 21$
- (B) $X = 12, Y = 24$
- (C) $X = 24, Y = 21$
- (D) $X = 20, Y = 24$

(Space for Rough Work)

- 20) Which type of carpel is observed in Michelia?
- (A) Bicarpellary, syncarpous
 - (B) Multicarpellary, apocarpous
 - (C) Multicarpellary, syncarpous
 - (D) Bicarpellary, apocarpous
- 21) In water hyacinth and water lily, the pollination is carried out by which agent?
- (A) Water
 - (B) Only wind
 - (C) Only insects
 - (D) Insects or wind
- 22) In black pepper remnants of nucellus persistent is known as ____.
- (A) Embryo
 - (B) Endosperm
 - (C) Perisperm
 - (D) Plumule
- 23) _____ hormone acts on the sertoli cells and stimulates secretion of some factors which help in the process of spermiogenesis.
- (A) TSH
 - (B) FSH
 - (C) LH
 - (D) PIF

(Space for Rough Work)

24) What indicates 'x' in the following diagram?



- | | |
|-----------------|---------------------|
| (A) Trophoblast | (B) Inner cell mass |
| (C) Blastomeres | (D) Uterine cells |

25) Zona Pellucida is first observed in _____.

- | | |
|-----------------------|------------------------|
| (A) Tertiary follicle | (B) Secondary follicle |
| (C) Primary follicle | (D) Graafian follicle |

26) The hormone releasing IUD is _____.

- (A) Multiload 375
(B) Cu-7
(C) LNG-20
(D) Cu-T

27) In which ART method more than 8 blastomeres are transferred into the uterus to complete its further development?

- (A) IUI
(B) IUT
(C) GIFT
(D) ZIFT

(Space for Rough Work)

- 28) The blood group of Rameshbhai is B and his daughter's blood group is AB. What will be the blood group of his wife?
- (A) B or O
(B) A or AB
(C) A or B
(D) A or O
- 29) "The behaviour of chromosomes was parallel to the behaviour of genes" was proposed by ____.
- (A) Walter Sutton and Theodor Boveri
(B) Alfred Hershey and Martha Chase
(C) Watson and Crick
(D) MacLeod and McCarty
- 30) Choose the correct triplet codon option for 'X'.



[Sickle cell HbS peptide]

- (A) GAU
(B) GAG
(C) GUG
(D) GAA

(Space for Rough Work)

- 31) Histone proteins are rich in _____ and _____ amino acids.
- (A) Lysine, Arginine
 - (B) Arginine, Tyrosine
 - (C) Lysine, Aspartic acid
 - (D) Glutamic acid, Lysine
- 32) What is the correct sequence to transfer genetic material from virus to bacteria in Hershey - Chase experiment?
- (A) Infection - Centrifugation - Blending
 - (B) Centrifugation - Blending - Infection
 - (C) Centrifugation - Infection - Blending
 - (D) Infection - Blending - Centrifugation
- 33) In Meselson and Stahl's experiment if E.coli was allowed to grow for 80 minutes then what would be the proportions of light and intermediate density of DNA molecule respectively? (If E.coli divides in every 20 minutes)
- (A) 12 : 2
 - (B) 6 : 2
 - (C) 2 : 2
 - (D) 14 : 2

(Space for Rough Work)

- 34) The brain capacity of Homo habilis is _____.
- (A) 1400cc - 1600cc
 - (B) 1350cc - 1400cc
 - (C) 650cc - 800cc
 - (D) 900cc - 1200cc
- 35) In Gir forest out of 100 individuals 40 individuals are recessive. Calculate the percentage of heterozygous progeny by Hardy - Weinberg principle.
- (A) 48%
 - (B) 16%
 - (C) 36%
 - (D) 24%
- 36) The _____ test confirmed the disease caused by salmonella typhi.
- (A) ELISA Test
 - (B) Widal Test
 - (C) W.B. Test
 - (D) PCR Test
- 37) _____ quickly reduce the symptoms of allergy.
- (A) Serotonin
 - (B) Heparin
 - (C) Adrenaline
 - (D) Histamine

(Space for Rough Work)

- 38) When ready - made antibodies are directly given to protect the body against foreign agents, it is called _____.
- (A) Humoral immune response
 - (B) Cytoplasm mediated immunity
 - (C) Cell mediated immunity
 - (D) Passive immunity
- 39) Which of the following crop of Okra (Bhindi) is insect pest resistance?
- (A) Pusa Sawani
 - (B) Pusa Sem
 - (C) Pusa Gaurav
 - (D) Pusa Komal
- 40) Which statement is incorrect for successful Bee-keeping?
- (A) Management of beehives during any one season
 - (B) Knowledge of the nature and habits of bees
 - (C) Selection of suitable location for keeping the beehives
 - (D) Catching and hiving of swarms

(Space for Rough Work)