

1. When a host is exposed to antigens, which may be in the form of living or dead microbes or other proteins, antibodies are produced in the host body. This type of immunity is called

- A. Passive Immunity
- B. Innate Immunity
- C. Acquired Immunity
- D. Active Immunity

SSF JAMIA MILLIA ISLAMIA
New Delhi

2. Which of the following is NOT a gaseous biogeochemical cycle in ecosystem?

- A. Water cycle
- B. Phosphorus cycle
- C. Carbon cycle
- D. Nitrogen cycle

3. Natural cannabinoids are obtained from the inflorescences of which of the following plant?

- A. Papaver somniferum
- B. Erythroxylum coca
- C. Cannabis saliva
- D. Datura

4. Montreal Protocol is associated with

- A. Control of emission of ozone depleting substances
- B. Control of radioactive waste
- C. Control of desertification
- D. Protection and management of forest

5. The plants which are genetically identical to the original plant from which they were grown are called as

- A. Somaclones
- B. Somatic hybrids
- C. Explants
- D. Recombinants

SSF JAMIA MILLIA ISLAMIA
New Delhi

6. Offspring formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because:

- A. Sexual reproduction is a lengthy process
- B. Gametes of parents have qualitatively different genetic composition
- C. Genetic material comes from parents of two different species
- D. Greater amount of DNA is involved in sexual reproduction.

7. Which of the following is a post-fertilization event in flowering plants?

- A. Transfer of pollen grains
- B. Formation of flower
- C. Embryo development
- D. Formation of pollen grains

8. What is removal of anthers from flower bud before the anther dehisces for plant breeding known as:

- A. Emasculation
- B. Bagging
- C. Artificial hybridization
- D. Rebagging

9. Which of the following is a non albuminous seed?

- A. Wheat
- B. Maize
- C. Groundnut
- D. Castor

10. The other name for Leydig cells is-

- A. Sertoli cells
- B. Interstitial cells
- C. Acinar cells
- D. Seminal vesicles

SSF JAMIA MILLIA ISLAMIA
New Delhi

11. What is the function of scrotum?

- A. To maintain high temperature
- B. To maintain low temperature
- C. Heterothermal
- D. None

12. Which of the following is Mendel's dihybrid ratio?

- A. 1:1:1:1
- B. 3:1
- C. 9:3:3:1
- D. 9:1:5:1

13. Who discovered the phenomenon of incomplete dominance in *Mirabilis* and *Antirrhinum*?

- A. De Vries
- B. Bateson
- C. Davenport
- D. Carl Correns

[5]

14. Which of the following is a method in which sperm is directly injected into the ovum?

A. GIFT

B. ET

C. ICSI

D. IUCD

SSF JAMIA MILLIA ISLAMIA
New Delhi

15. What is the name of process of addition of methyl guanosine triphosphate at the 5' end of hn RNA?

A. Tailing

B. Capping

C. Splicing

D. None

16. Which codons are stop codons?

A. UAA, UGC, UCG

B. UAA, UGA, UAG

C. UAA, UGC, UAG

D. UAA, UAG, UGC

17. Who experimentally proved that DNA is the genetic material?

A. Meselson & Chase

B. Hershey & Chase

C. Hershey & Meselson

D. Watson & Chase

nto the

18. Microevolution takes place due to-

- A. Somatogenic variation
- B. Blastogenic variation
- C. Continuous variation
- D. Successive variation

SSF JAMIA MILLIA ISLAMIA
New Delhi

at the

19. Parallelism is:

- A. Adaptive divergence
- B. Adaptive convergence
- C. Adaptive convergence of far off species
- D. Adaptive convergence of closely related groups.

20. Hardy-Weinberg equilibrium is known to be effected by gene flow, genetic drift, mutation, genetic recombination and

- | | |
|--------------|----------------------|
| A. Evolution | B. Limiting factor |
| C. Saltation | D. Natural selection |

21. The function of helper T- cells is to:

- | | |
|----------------------|---------------------|
| A. Stimulate B-cells | B. Kill antigens |
| C. Kill antibodies | D. Suppress B-cells |

22. What is Spirulina?

- A. Biofertilizer
- B. Edible fungus
- C. Single cells protein
- D. Biopesticide

23. High value of BOD (Biochemical Oxygen Demand) means-

- A. Water is normal
- B. Water is highly polluted
- C. Water is less polluted
- D. None of these

SSF JAMIA MILLIA ISLAMIA
New Delhi

24. Restriction endonuclease functions to

- A. Synthesizes DNA
- B. Cuts the DNA molecule randomly
- C. Cuts the DNA molecule at specific sites
- D. Restricts the synthesis of DNA inside the molecules

25. Gel electrophoresis is used for

- A. Construction of recombinant DNA by joining with cloning vectors.
- B. Isolation of DNA molecules.
- C. Cutting of DNA into fragments.
- D. Separation of DNA fragments according to their size.

26. Meiosis does not occur in

- A. A sexually reproducing diploid individuals
- B. Sexually reproducing haploid individuals
- C. Sexually reproducing diploid individuals
- D. All of these

27. If a butterfly has chromosome number 360 in its meiocyte ($2n$), what will be the chromosome number in its gametes?

- A. 380
- B. 190
- C. 95
- D. 760

SSF JAMIA MILLIA ISLAMIA
New Delhi

28. Sugarcane is propagated by

- A. Root cutting
- B. Stem cutting
- C. Seeds
- D. Buds

29. The process of development of fruits without fertilization is called

- A. Parthenogenesis
- B. Agamospermy
- C. Parthenocarpy
- D. Apomixis

30. Polygonum type of embryo sac is

- A. 8 nucleate, 7 celled
- C. 7 nucleate, 7 celled

- B. 8 nucleate, 8 celled
- D. 4 nucleate, 3 celled

31. In a fertilized embryo sac, the haploid, diploid and triploid structures are

- A. Synergid, zygote and primary endosperm nucleus
- B. Antipodals, synergid and primary endosperm nucleus
- C. Synergids, polar nuclei and zygote
- D. Synergids, antipodals and polar nuclei

SSF JAMIA MILLIA ISLAMIA
New Delhi

32. The increase in concentration of the toxicant at successive trophic levels is called as

- A. Biomagnification
- B. Biofortification
- C. Eutrophication
- D. Bioaccumulation

33. The human female reaches menopause around the age of

- A. 50 years
- B. 15 years
- C. 70 years
- D. 25 years

34. The hormones regulating menstrual cycle are

- A. Follicle Stimulating Hormone
- B. Luteinizing Hormone
- C. Oestrogens & Progestrones
- D. All of the above

35. The technique called Gamete intra Fallopian Transfer (GIFT) is recommended for those females

SSF JAMIA MILLIA ISLAMIA
New Delhi

- A. Who cannot produce ovum
- B. Who cannot retain foetus inside uterus
- C. Who cannot provide suitable environment for fertilization
- D. All of these

36. Emergency contraceptives are effective if used within

- A. 72 hours of ovulation
- B. 72 hours of menstruation
- C. 72 hours of coitus
- D. 72 hours of implantation

37. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is

- A. Autosomal dominant
- B. Autosomal recessive
- C. Sex-linked dominant
- D. Sex linked recessive

38. The genes which code for a pair of contrasting traits are known as

- A. Dominant genes
- B. Alleles
- C. Linked genes
- D. None of these

39. Who is called as the 'Father of Experimental Genetics'?

- A. T.H. Morgan
- B. Gregor Johann Mendel
- C. Walter Sutton
- D. Theodor Boveri

40. The net electric charge on DNA and histones is

- A. Both positive
- B. Both negative
- C. Negative and positive respectively
- D. Zero

SSF JAMIA MILLIA ISLAMIA
New Delhi

41. In DNA strand, nucleotides are linked together by

- A. Phosphodiester linkage
- B. Peptide linkage
- C. N-glycosidic linkage
- D. Hydrogen bonds

42. Who proposed the semi-conservative model for DNA replication?

- A. Hershey-Chase
- B. Oswald Avery
- C. Maclyn McCarty
- D. Watson-Crick

43. Analogous organs arise due to

- A. Divergent evolution
- B. Artificial selection
- C. Genetic drift
- D. Convergent selection

SSF JAMIA MILLIA ISLAMIA
New Delhi

44. The symbiotic association between fungi and plants is called as

- A. Lichens
- B. Endosymbiosis
- C. Mycorrhiza
- D. Mutualism

45. Antibodies present in colostrum which protect the new born from certain disease is of

- A. IgG type
- B. IgA type
- C. IgD type
- D. IgE type

46. Which of the following is INCORRECT among the features of genetic code

- A. The codon is triplet
- B. One codon codes for two amino acids
- C. The code is degenerate
- D. The code is nearly universal

47. A scientific process by which crop plants are enriched with certain desirable nutrients is called

- A. Crop protection
- B. Breeding
- C. Bio fortification
- D. Bio remediation

48. The process used for amplification or multiplication of DNA in DNA fingerprinting is

- A. Polymerase chain reaction
- B. Southern blotting
- C. Northern blotting
- D. None of these

SSF JAMIA MILLIA ISLAMIA
New Delhi

49. A protoxin is

- A. A primitive toxin
- B. A denatured toxin
- C. Toxin produced by protozoa
- D. Inactive toxin

50. Golden rice, developed through transgene approach is rich in

- A. High lysine content
- B. High methionine content
- C. High glutenin content
- D. High vitamin A content

51. Two satellites A and B, ratio of masses 3:1 is in circular orbit of radii r and $4r$. Then ratio of total mechanical energy of A to B is

- A. 1:3
- B. 3:1
- C. 3:4
- D. 12:1

irabl
52. 50g of ice is mixed with 50g of water at 80°C . The temperature of the mixture will be

- A. 0°C B. 40°C
C. 80°C D. 4°C

SSF JAMIA MILLIA ISLAMIA
New Delhi

DNA
53. A ray incident at 15° on one refracting surface of a prism of angle 60° , suffer a deviation at 55° . What is the angle of emergence?

- A. 95° B. 45°
C. 30° D. none of these

54. Magnifying power of an astronomical telescope for normal vision with usual notation is

- A. $-F_o/f_e$ B. $-f_o \times f_e$
C. $-f_e/f_o$ D. $-f_o + f_e$

r.
55. Two gases at absolute temperature 300K and 350K respectively. Ratio of average kinetic energy of their molecules is

- A. 7:6 B. 6:7
C. 36:49 D. 49:36

56. Which of the following is diamagnetic?

- A. Aluminium
- C. Nickel

- B. Quartz
- D. Bismuth

57. If N is number of turns in the coil, then self-inductance varies as

- A. N^0
- C. N^{-1}

- B. N^2
- D. N^{-2}

58. A freshly prepared radioactive source of half life 2 hrs emits radiation of intensity which is 64 times the permissible safe level. Minimum time after which it would be possible to work safely with this source is

- A. 6 hrs
- C. 24 hrs

- B. 12 hrs
- D. 128 hrs

SSF JAMIA MILLIA ISLAMIA
New Delhi

59. The transverse nature of light is shown by

- A. interference
- C. polarization

- B. refraction
- D. dispersion

60. In insulators

- A. valence band is partially filled with electrons
- B. conduction band is partially filled with electrons
- C. conduction band is filled with electrons and valence band is empty
- D. conduction band is empty and valence band is filled with electrons.

61. Two wires of same length are shaped into square and a circle. If they carry same current, ratio of the magnetic moment is

A. $2: \pi$

B. $\pi: 2$

C. $\pi: 4$

D. $4: \pi$

SSF JAMIA MILLIA ISLAMIA
New Delhi

62. If L and R denote inductance and resistance, then dimensions of L/R are

A. $M^0 L^0 T^0$

B. $M^0 L^0 T$

C. $M^2 L^0 T^2$

D. MLT^2

63. Activity of radioactive element decreased to one third of original activity I_0 in 9 years. After further 9 years, its activity will be

A. I_0

B. $\frac{2}{3} I_0$

C. $I_0/9$

D. $I_0/6$

64. A coil having 500 sq loops of side 10 cm is placed in placed normal to magnetic field flux which increases at a rate of 1 T/second. The induced emf is (v) is

A. 0.1 V

B. 0.5 v

C. 1 v

D. 5 V

65. An electron is projected along the axis of a circular conductor carrying some current. Electron will experience force

- A. Along the axis.
- B. Perpendicular to the axis
- C. At an angle of 4° with axis
- D. No force experienced.

66. A car, moving at the speed of 50 km/hr can be stopped by brakes after at least 6 m. if the same car is moving at the speed of 100 Km/hr, then minimum stopping distance is

- A. 6m
- B. 12m
- C. 18m
- D. 24m

SSF JAMIA MILLIA ISLAMIA
New Delhi

67. A marble block of mass 2 kg lying on ice when given a velocity of 6m/s is stopped by friction in 10s. Then the coefficient of friction is

- A. 0.01
- B. 0.02
- C. 0.03
- D. 0.06

68. "Heat cannot itself flow from the body at lower temperature to a body at higher temperature" is a statement or consequence of

- A. First law of thermodynamics
- B. Second law of thermodynamics
- C. conservation of momentum
- D. conversation of mass

69. A 220 volt, 1000 watt bulb is connected across a 110 volt mains supply. The power consumed will be

A. 1000 watt

B. 750 watt

C. 500 watt

D. 250 watt

SSF JAMIA MILLIA ISLAMIA
New Delhi

70. The core of a transformer is laminated so as to

A. increase the secondary voltage

B. reduce the energy loss due to eddy current

C. make it light weight

D. make it robust and strong

71. A diamagnetic material in a magnetic field moves

A. from weaker to stronger part of fields

B. perpendicular to the field

C. from stronger to weaker part of field

D. in none of the above direction

72. A p-n-p transistor conducts when

A. Collector is positive and emitter is negative with respect to the base

B. Collector is positive and emitter is at negative potential as the base

C. Both collector and emitter are negative with respect to the base

D. Both collector and emitter are positive with respect to the base

73. Consider a compound slab consisting of two different materials having equal thickness and thermal conductivities K and $2K$, respectively. The equivalent thermal conductivity of the slab is

A. $1/2 K$

B. $3K$

C. $4/3 K$

D. $2/3 K$

SSF JAMIA MILLIA ISLAMIA
New Delhi

74. The time period of a mass suspended from a spring is T . If the spring is cut into four parts and the same mass is suspended from each of the parts, then the new time period will be

A. T

B. $T/2$

C. $2T$

D. $T/4$

75. An ideal gas heat engine operates in a Carnot cycle between 227°C and 127°C . It absorbs 6 Kcal at the higher temperature. The amount of heat (in Kcal) converted into work is equal to

A. 3.5

B. 1.6

C. 1.2

D. 4.8

76. Boyle's temperature and inversion temperature are related as

A. $T_i = T_b$

B. $2T_i = T_b$

C. $T_i = 2T_b$

D. $T_i = 3T_b$

77. The point at which densities of a substance in gaseous as well as in liquid state are same called

- A. Critical point
- B. Isoelectric point
- C. Isotonic point
- D. Ideal point

SSF JAMIA MILLIA ISLAMIA
New Delhi

78. Which of the following has maximum number of molecules?

- A. 2.7 g of NH_3
- B. 1 L SO_2 at STP
- C. 2 L of Cl_2 at STP
- D. 0.1 mol of H_2

79. A certain gas takes three times as long to effuse out as helium. Its molecular mass will be

- A. 27u
- B. 36u
- C. 64u
- D. 9u

80. A system absorbs 10 kJ of heat and does 4 kJ of work. The internal energy of the system

- A. decreases by 6 KJ
- B. increases by 6 kJ
- C. decreases by 14 kJ
- D. increases by 14 kJ

81. The heat of neutralization of LiOH and HCL at 25°C is 34.868 kJ/mole . The heat of ionization of LiOH will be

- A. 44.674 kJ B. 22.232 kJ
C. 32.684 kJ D. 96.464 kJ

82. 16 kg of oxygen gas expands at STP (1 atm) isobarically to double of its original volume. The work done during the process is nearly

- A. 260 kcal B. 180 kcal
C. 130 D. 271 kcal

SSF JAMIA MILLIA ISLAMIA
New Delhi

83. The enthalpy of fusion of water is 1.435 kcal/mol . The molar entropy change for melting of ice at 0°C is

- A. $5.260 \text{ cal/ (mol K)}$ B. $0.526 \text{ cal/ (mol K)}$
C. $10.52 \text{ cal/ (mol K)}$ D. $21.04 \text{ cal/ (mol K)}$

84. A solution of NaOH contains 0.04 gm of NaOH per litre. Its pH is

- A. 10 B. 9
C. 11 D. 12

85. An example of salt dissolved in water to give acidic solution is

- A. Ammonium chloride B. Sodium acetate
C. Potassium nitrate D. Barium bromide

86. 0.4 g of organic compound gave 0.188g of AgBr. The percentage of Br in the compound is

- | | |
|---------|---------|
| A. 39.8 | B. 46.0 |
| C. 20.0 | D. 40.0 |

SSF JAMIA MILLIA ISLAMIA
New Delhi

87. Among the following compounds the one that is most reactive towards electrophilic nitration is

- | | |
|-----------------|-----------------|
| A. Toluene | B. Benzene |
| C. Benzoic acid | D. Nitrobenzene |

88. Which of the following compounds will not undergo Friedel-Craft's reaction easily?

- | | |
|------------|-----------------|
| A. Xylene | B. Nitrobenzene |
| C. Toluene | D. Cumene |

89. Which of the following compounds will exhibit cis-trans (geometric) isomerism?

- | | |
|---------------|--------------|
| A. Butanol | B. 2-Butyne |
| C. 2- Butanol | D. 2- Butene |

90. The correct order regarding the electronegativity of hybrid orbitals of carbon is
- A. $sp > sp^2 < sp^3$ B. $sp > sp^2 > sp^3$
C. $sp < sp^2 > sp^3$ D. $sp < sp^2 < sp^3$

91. The best method for separation of naphthalene and benzoic acid from their mixture is
- A. Chromatography B. Crystallization
C. Distillation D. Sublimation

SSF JAMIA MILLIA ISLAMIA
New Delhi

92. Nitrogen detection in an organic compound is carried out by Lassaigne's test. The blue colour formed corresponds to which of the following formula?

- A. $Fe_3[Fe(CN)_6]_3$ B. $Fe_3[Fe(CN)_6]_2$
C. $Fe_4[Fe(CN)_6]_3$ D. $Fe_4[Fe(CN)_6]_2$

93. An organic compound contains carbon, hydrogen and oxygen. Its elemental analysis gave C, 38.71% and H, 9.67%. The empirical formula of the compound would be

- A. CH_4O B. CH_3O
C. CH_2O D. CHO

94. The number of structural isomers in $C_4H_{10}O$ will be

- A. 7
B. 8
C. 5
D. 6

95. The reactive oxygen species in the nitration of benzene is

- A. NO_3
B. NHO_3
C. NO_2^+
D. NO_2^-

SSF JAMIA MILLIA ISLAMIA
New Delhi

96. The solubility in water of sulphate down the Be group is $Be > Mg > Ca > Sr > Ba$. This is due to

- A. decreasing lattice energy
B. high heat of solvation for smaller ions be like Be^{2+}
C. increase in melting points
D. increasing molecular weight

97. Among the following which is the strongest oxidizing agent?

- A. Br_2
B. I_2
C. Cl_2
D. F_2

98. Oxidation states of P in $H_4P_2O_5$, $H_4P_2O_6$, $H_4P_2O_7$ are respectively

- A. +3, +4, +5
B. +3, +5, +4
C. +5, +3, +4
D. +5, +4, +3

99. Amides may be converted into amines by a reaction named after

A. Hofmann

B. Claisen

C. Perkin

D. Kekule

SSF JAMIA MILLIA ISLAMIA
New Delhi

100. Two possible stereo-structures of $\text{CH}_3\text{CHOH.COOH}$, which are optically active, are called

A. Enantiomers

B. Mesomers

C. Diastereomers

D. Atropisomers