

1. Ozone layer situated in which layer of the atmosphere :

- (A) Stratosphere
(B) Mesosphere
(C) Ionosphere
(D) Troposphere

2. The ability of an optical instrument to produce separate images of two objects clearly is called:

- (A) limit of resolution
(B) magnification
(C) polarisation
(D) resolving power

3. 1 Curie is equal to :

- (A) 3.7×10^{10} dis/sec
(B) 37×10^{10} dis/sec
(C) 10^6 dis/sec
(D) 37×10^6 dis/sec

4. The sources of energy in stars is due to :

- (A) nuclear fission
(B) chain reaction
(C) nuclear fusion
(D) radioactive disintegration

5. Which is used in voltage regulator circuit?

- (A) Photo diode
(B) P-n junction diode
(C) Zener diode
(D) Solar cell

6. The input resistance of a CE amplifier is 2 kilo ohms and current gain is 20, a load resistor of 5 kilo ohm is used in the circuit, calculate the voltage gain of the amplifier :

- (A) 50 (B) 200 (C) 250 (D) 500

7. Slope of the velocity time graph gives

- (A) acceleration
(B) displacement
(C) instantaneous velocity
(D) area

8. The position time graph of a particle is a straight line parallel to the time axis, this means :

- (A) the particle is at rest
(B) it is moving with uniform velocity
(C) it is moving with uniform acceleration
(D) none of these

9. A boy throw a javelin at an angle ' θ ' with the horizontal, the motion of the javelin is :

- (A) one dimensional motion
(B) circular motion
(C) projectile motion
(D) uniform velocity

10. When a lift is moving down with an acceleration ' a ' the apparent weight of the body is :

- (A) $R = m(g + a)$
(B) $R = mg$
(C) $R = m(g - a)$
(D) $R = 0$

11. Which one has the same dimension as that of momentum?

- (A) Power (B) Work
(C) Force (D) Impulse

12. When two bodies stick together after collision the collision is said to be :

- (A) perfectly elastic
(B) partially elastic
(C) perfectly inelastic
(D) partially inelastic

13. A man pushes a wall and fails to displace it, he does :

- (A) negative work
(B) no work at all
(C) positive work
(D) maximum work but not maximum

14. The gravitational force between two particles is ' F '. If the distance between the particles were halved the force becomes :

- (A) f (B) $\frac{f}{2}$
(C) $2f$ (D) $4f$

15. The gravitational field intensity is maximum at the:

- (A) equator
(B) poles

(C) center of the earth

(D) region above the atmosphere

16. A planet is revolving round the sun in an elliptical orbit, which is conserved during the motion of the planet:

- (A) potential energy
(B) linear speed
(C) total energy
(D) kinetic energy

17. Which is the correct relation for 'stress'?

- (A) $\frac{\text{Force}}{\text{Area}}$
(B) $\frac{\text{Force}}{\text{Length}}$
(C) $\frac{\text{Force}}{\text{Displacement}}$
(D) $\frac{\text{Force}}{\text{Velocity}}$

18. The spinning of a cricket ball is due to :

- (A) its large velocity
(B) changes in temperature of the atmosphere
(C) magnus effect
(D) viscosity of air

19. When water is heated from zero degree Celsius to 100 degree Celsius the density of water becomes :

- (A) decreases
(B) increases
(C) first increases then decreases
(D) does not change

20. ' dw ' is the work done by a gas and ' du ' is the change in internal energy. If ' $du + dw = 0$ ' the process is :

- (A) adiabatic (B) cyclic
(C) isothermal (D) isobaric

21. The vibrations of a body are damped because of :

- (A) elasticity of the body
(B) density of the body
(C) weight of the body
(D) frictional forces offered by the medium

22. The unit of intensity level of sound is :

- (A) Lumen (B) Weber
(C) Decibel (D) Hertz

23. Pick the odd one in the following :

- (A) 0.890 (B) 0.0800
(C) 8.00 (D) 0.081

24. A body of mass 4 kg having momentum ' p ', then what will be the kinetic energy?

- (A) $\frac{p}{8}$ (B) $\frac{p^2}{8}$
(C) $8p$ (D) $8p^2$

25. The work done by a force is given by the area of:

- (A) time-displacement graph
(B) force-acceleration graph
(C) velocity-time graph
(D) force-displacement graph

26. Electron in the hydrogen atom revolves round the nucleus with a period of 1.67×10^{-15} sec, calculate current in the orbit:

- (A) 95.8×10^{-5} A
(B) 9.58×10^{-5} A
(C) 2.672×10^{-34} A
(D) 26.27×10^{-34} A

27. 1 kWh is equal to :

- (A) 36×10^6 J (B) 36000 J
(C) 3.6×10^6 J (D) 3600 J

28. Which is odd one in the following?

- (A) Dip
(B) Magnetic declination
(C) Geographic meridian
(D) Horizontal intensity

29. Which is paramagnetic in nature?

- (A) Water (B) Mercury
(C) Bismuth (D) Aluminium

30. Wave nature of electron was first experimentally verified by :

- (A) Einstein
(B) Davisson and Germer
(C) Huygens
(D) Rayleigh

31. The pH of a buffer solution is calculated by using :

- (A) Gibbs equation

(B) Debye-Huckel Onsager equation

(C) Henderson equation

(D) Nernst equation

32. The lightest metal known is

- (A) Beryllium (B) Boron
(C) Sodium (D) Lithium

33. If all the octahedral voids in CCP arrangement of B are completely filled by A^+ ions, the empirical formula of the compound is :

- (A) A_2B_3 (B) AB_2
(C) A_2B (D) AB

34. The first noble gas compound $XePtF_6$ is prepared by :

- (A) Rutherford (B) Bartlett
(C) Ramsay (D) Lockyer

35. "Iodised salt" contains :

- (A) Sodium iodide
(B) Hydrogen iodide
(C) Lead iodide
(D) Silver iodide

36. Which is the second most abundant element in the universe?

- (A) Hydrogen (B) Oxygen
(C) Helium (D) Nitrogen

37. 'Solvay process' is used for the manufacture of:

- (A) Calcium carbonate
(B) Sodium carbonate
(C) Sodium hydroxide
(D) Potassium carbonate

38. Poisonous gas present in the exhaust fumes of car is :

- (A) Carbon monoxide
(B) Nitrogen
(C) Carbon dioxide
(D) Sulphur dioxide

39. Which of the following is a 'ferromagnetic substance'?

- (A) FeO (B) Fe_3O_4
(C) Fe (D) NaCl

40. Which element below seems to be most useful in making transistors?

- (A) Antimony (B) Silicon
(C) Graphite (D) Titanium

41. Benzene can be directly converted to toluene by :

- (A) Wurtz reaction
(B) Kolbes reaction
(C) Friedel-Craft reaction
(D) Etards reaction

42. The promoter used in the 'Haber process' for the manufacture of ammonia is :

- (A) FeO (B) ZnO
(C) CrO_2 (D) MO

43. 'Cassiterite' is the chief ore of :

- (A) Tin (B) Lead
(C) Mercury (D) Zinc

44. Which of the following is not electromagnetic in nature?

- (A) Infrared rays
(B) Sound waves
(C) Ultra violet rays
(D) Radio waves

45. In 'Dumas method' of estimation of nitrogen in organic compounds, the gas finally collected is:

- (A) NO (B) N_2
(C) NH_3 (D) N_2O

46. Which of the following is not a state function of thermodynamic system?

- (A) Work (B) Entropy
(C) Enthalpy (D) Free energy

47. The product obtained by the ozonolysis of ethene is :

- (A) Ethanol and Methanol
(B) Ethanol
(C) Methanol and Propanone
(D) Methanol

48. Which of the following is 'Super cooled liquid'?

- (A) Bromine (B) Mercury
(C) Helium (D) Glass

49. The theory of steam distillation is based on

- (A) Boyles law (B) Daltons law
(C) Charles law (D) Avogadros law

50. 'Seconal' is :

- (A) Antipyretic (B) Analgesic
(C) Tranquilizer (D) Antiseptic

51. Which of the following is known as 'Inorganic Benzene'?

- (A) Borazine (B) Hydrazine

- (C) Phenylamine (D) Carbylamine
52. 'Syn gas' is a mixture of:
 (A) Hydrogen and Nitrogen
 (B) Hydrogen and Oxygen
 (C) Hydrogen and Carbon monoxide
 (D) Hydrogen and Carbon dioxide
53. When 9650 Coulombs of electricity is passed through molten NaCl, the amount of sodium deposited is :
 (A) 0.23 g (B) 2.3 g (C) 23 g (D) 3.3 g
54. 'Vulcanisation of rubber' is a process of heating natural rubber with :
 (A) Sulphur (B) Sulphur dioxide
 (C) Carbon (D) Lead
55. When a liquid boils :
 (A) its temperature becomes 100°C
 (B) its temperature becomes double its pressure
 (C) its volume becomes 22.4 L
 (D) its pressure becomes equal to atmospheric pressure
56. The law of conservation of mass is proposed by :
 (A) Louis Proust (B) John Dalton
 (C) Ritzcher (D) A.Lavoisier
57. An isotone of an element has :
 (A) same number of electrons
 (B) same number of neutrons
 (C) same number of protons
 (D) same number of mesons
58. The green pigment present in plants, chlorophyll contains the metal:
 (A) Fe (B) Al (C) Mg (D) Ca
59. Galvanization is the deposition of:
 (A) copper on iron
 (B) tin on iron
 (C) zinc on iron
 (D) aluminium on iron
60. The angular structure of water is due to:
 (A) sp³ hybridisation of oxygen
 (B) its polar nature
 (C) high electronegativity of oxygen
 (D) use of p-orbitals
61. The enzyme catalyzing reductive amination in N₂ metabolism is:
 (A) Glutamate dehydrogenase
 (B) Alcohol dehydrogenase
 (C) Nitrogenase
 (D) Transaminase
62. A C₃ plant was grown at different temperatures: one below 28°C and one above 28°C. In which of the plants the carbon loss due to photorespiration is more?
 (A) Plant below 28°C
 (B) Plant above 28°C
 (C) Same for both
 (D) Photorespiration cannot happen
63. In anaerobic respiration the R.Q. is :
 (A) 1 (B) 2 (C) ∞ (D) 0.7
64. Which of the following hormones is not found in plants?
 (A) GA (B) 2, 4-D
 (C) ABA (D) IAA
65. The deficiency symptom of nitrogen appear first in older tissues because :
 (A) nitrogen is excess for older tissues
 (B) nitrogen is relatively immobile
 (C) nitrogen is actively mobilized within the plants
 (D) nitrogen is a macro nutrient
66. The intermediate compound common for aerobic and anaerobic respiration is :
 (A) Pyruvic acid (B) Citric acid
 (C) Acetyl CoA (D) Succinic acid
67. The phenomenon by which ds RNA molecule binds to mRNA and prevents translation of mRNA of the pathogen is called :
 (A) mRNA splicing
 (B) mRNA annealing
 (C) mRNA synthesis
 (D) mRNA silencing
68. A child of blood group O cannot have parents of blood groups
 (A) A and A (B) AB and O
 (C) A and B (D) B and B
69. Restriction enzyme Eco RI cleaves DNA at the sequence
 (A) AAGCTT (B) AAGTTC
 (C) GTATATC (D) GAATTC
70. If an endosperm cell of an angiosperm contains 30 chromosomes, the number of chromosomes in each cell of root will be :
 (A) 15 (B) 10 (C) 20 (D) 30
71. Brood parasitism is shown by :
 (A) Sparrow (B) Cuckoo
 (C) Kite (D) Egret
72. 'World Biodiversity Day' is observed on :
 (A) May 22 (B) June 5
 (C) July 1 (D) March 21
73. Emasculation is a part of:
 (A) Mass selection
 (B) Pure line selection
 (C) Hybridisation
 (D) Clonal selection
74. Father of Ecology in India is :
 (A) M.S. Swaminathan
 (B) Ramdeo Misra
 (C) K.C. Mehta
 (D) M.O.P. Iyengar
75. In C₄ plants C₃ pathway occurs in:
 (A) Palisade cells
 (B) Mesophyll cells
 (C) Both (A) and (B)
 (D) Bundle sheath cells
76. The meristem which helps grasses to regenerate parts removed by grazing herbivores is
 (A) Intercalary meristem
 (B) Apical meristem
 (C) Secondary meristem
 (D) Lateral meristem
77. Rod shaped bacterium is called :
 (A) Coccus (B) Bacillus
 (C) Vibrio (D) Spirillum
78. Which of the following medicinal plants belong to the family Solanaceae?
 1. *Belladonna*
 2. *Aloe*
 3. *Asparagus*
 4. *Aswagandha*
 (A) 1, 2 and 3 (B) 2 and 3
 (C) 2, 3 and 4 (D) 1 and 4
79. Chiasmata formation occurs during:
 (A) Pachytene (B) Leptotene
 (C) Diplotene (D) Diakinesis
80. Facilitated diffusion cause the net transport of molecules :
 (A) from low concentration to high concentration
 (B) from high concentration to low concentration
 (C) from the root to soil
 (D) across the membrane irrespective of concentration difference
81. During transcription RNA polymerase binds to :
 (A) Terminator site
 (B) Promoter site
 (C) Elongation site
 (D) Initiation site
82. A retrovirus is :
 (A) Influenza virus
 (B) Aids virus
 (C) Pneumococcus
 (D) Salmonella
83. The partially digested food present in stomach is called :
 (A) Chyle
 (B) Chyme
 (C) Chylomicrons
 (D) None of these
84. Alteration of generation is also called :
 (A) Metamorphosis
 (B) Metagenesis
 (C) Metabolism
 (D) None of these
85. Chromosomal theory of inheritance was proposed by :
 (A) Jacob and Monod
 (B) Hershey and Chase
 (C) Sturtevant
 (D) Sutton and Boveri
86. Nursing cells are :
 (A) Leydig cells
 (B) Primary oocyte
 (C) Sertoli cells
 (D) Sperm cells
87. The enzyme that helps in DNA replication :
 (A) Gyrase
 (B) Helicase
 (C) RNA polymerase
 (D) DNA polymerase
88. One heart beat takes :
 (A) .8 sec (B) 1 sec
 (C) 2 sec (D) .6 sec
89. Name the hormone which regulates blood calcium level:
 (A) Insulin (B) Thyroxine
 (C) Parathyroid hormone
 (D) Melatonin
90. Fertilized ovum is called :
 (A) Corpus luteum
 (B) Secondary oocyte
 (C) Zygote
 (D) Blastocyst
91. Dihybrid test cross ratio is
 (A) 1:2:1 (C) 1:1:1:1
 (B) 1:1 (D) 3:1
92. Name the type of scales present in chondrichthyes :
 (A) Cycloid (B) Ganoid
 (C) Placoid (D) Ctenoid
93. Ascidia is an example for :
 (A) Echinodermata
 (B) Tunicata
 (C) Cephalochordata
 (D) Hemichordata
94. Thrombocyte count in blood is :
 (A) 4-5 lakhs/c.m.m. of blood
 (B) 6000-8000/c.m.m. of blood
 (C) 1,50,00 - 3,50,00/c.m.m. of blood
 (D) None of these
95. Name the line that is passing through the centre of I band of a muscle fibre
 (A) Mline (B) Z line
 (C) Gline (D) None of these
96. Total chromosome number of a *Klenifelter* ;
 (A) 46 (B) 44 (C) 45 (D) 47
97. A sexually transmitted disease:
 (A) Elephantiasis (B) Syphilis
 (C) Typhoid (D) Malaria
98. The hormone which influences ovulation :
 (A) GH (B) LTH (C) LH (D) FSH
99. Antibodies produced against allergy is :
 (A) IgA (B) IgM (C) IgE (D) LgG
100. A bacterium which lives in the root nodules of leguminous plants:
 (A) *Azospirillum* (B) *Mycorrhiza*
 (C) *Azotobacter* (D) *Rhizobium*

Provisional Answer Key

Q. No.	On Booklet	Alpha	Code	Q. No.	On Booklet	Alpha	Code
1	B	A	A D	51	A	A	D C
2	C	D	A C	52	D	C	B D
3	C	A	A B	53	D	B	C D
4	D	C	C D	54	B	A	C B
5	B	C	C B	55	C	D	A A
6	A	A	D C	56	A	D	C C
7	D	A	C A	57	C	B	D B
8	A	A	B C	58	B	C	D A
9	C	C	D C	59	A	C	B C
10	C	C	B A	60	D	A	A B
11	A	D	C D	61	A	A	C C
12	A	C	A C	62	B	B	B A
13	A	B	C D	63	D	C	C D
14	C	D	C B	64	C	B	A B
15	C	B	A D	65	C	C	D D
16	D	C	D B	66	A	A	B C
17	C	A	C C	67	B	D	D B
18	B	C	D C	68	C	B	C A
19	D	C	B D	69	B	D	B C
20	B	A	D B	70	C	C	A B
21	C	D	B A	71	A	B	C D
22	A	C	C D	72	D	A	B A
23	C	D	C A	73	B	C	D B
24	C	B	D C	74	D	B	A D
25	A	D	B C	75	C	D	B C
26	D	B	A A	76	B	A	D B
27	C	C	D A	77	A	B	C A
28	D	C	A A	78	C	D	B B
29	B	D	C C	79	B	C	A C
30	D	B	C C	80	D	B	B B
31	D	C	C C	81	D	B	B D
32	B	D	B D	82	B	B	B C
33	C	D	A A	83	C	B	D D
34	C	B	C B	84	C	B	C A
35	A	A	B B	85	D	D	D C
36	C	C	C A	86	B	C	A C
37	D	B	D D	87	B	D	C C
38	D	A	A D	88	B	A	C C
39	B	C	B B	89	B	C	C B
40	A	B	B C	90	D	C	C C
41	C	C	A A	91	C	C	B B
42	B	D	D C	92	D	C	C D
43	A	A	D B	93	A	B	B B
44	C	B	B A	94	C	C	D C
45	B	B	C D	95	C	B	B C
46	C	A	A D	96	C	D	C D
47	D	D	C B	97	C	B	C B
48	A	D	B C	98	B	C	D B
49	B	B	A C	99	C	C	B B
50	B	C	D A	100	B	D	B B