

9-BSC-CFS - Provisional Answer Key

1. Ohm's law is valid only when:
(A) Temperature is constant (B) Resistance is variable
(C) Current is very high (D) Voltage is zero
2. The area under a velocity-time graph gives:
(A) Displacement (B) Acceleration
(C) Speed (D) Distance squared
3. Two point charges $+3\mu\text{C}$ and $-3\mu\text{C}$ are placed 2 cm apart. The electric dipole moment is:
(A) $6 \times 10^{-6} \text{C}\cdot\text{m}$ (B) $3 \times 10^{-8} \text{C}\cdot\text{m}$
(C) $6 \times 10^{-8} \text{C}\cdot\text{m}$ (D) $3 \times 10^{-6} \text{C}\cdot\text{m}$
4. A convex lens of focal length 20 cm is placed in contact with a concave lens of focal length 30 cm. The power of the combination is:
(A) +2.5 D (B) -1.5 D
(C) +1.5 D (D) -2.5 D
5. The mass defect of a nucleus is due to:
(A) Electrons (B) Binding energy
(C) Protons (D) Neutrons
6. In which of the following processes is heat absorbed?
(A) Exothermic (B) Endothermic
(C) Isothermal (D) Adiabatic
7. The focal length of a concave lens is:
(A) Positive (B) Negative
(C) Zero (D) Infinite
8. The trajectory of a projectile is:
(A) Parabolic (B) Circular
(C) Straight line (D) Elliptical
9. The dimensional formula of force is:
(A) $[\text{MLT}^{-2}]$ (B) $[\text{ML}^2\text{T}^{-2}]$
(C) $[\text{ML}^{-2}\text{T}^{-2}]$ (D) $[\text{M}^{-1}\text{LT}^2]$
10. The unit of electric flux is:
(A) Nm^2/C (B) Nm/C
(C) N/C (D) C/Nm^2
11. The work done by a conservative force:
(A) Depends on the path (B) Is zero in a closed loop
(C) Is always negative (D) Is equal to kinetic energy
12. Power is defined as:
(A) Energy \times Time (B) Work done / Time taken
(C) Force \times Displacement (D) Force / Acceleration
13. First law of thermodynamics is a restatement of the law of:
(A) Conservation of energy (B) Conservation of mass
(C) Conservation of temperature (D) Conservation of heat

14. In an isothermal process, the change in internal energy is:
(A) Positive (B) Negative
(C) Zero (D) Infinite
15. A charged particle moves in a circular path in a magnetic field due to:
(A) Electric force (B) Magnetic force
(C) Gravitational force (D) Nuclear force
16. The critical angle depends on:
(A) Angle of incidence (B) Refractive indices of the media
(C) Color of light (D) Distance between object and mirror
17. Half-life of a radioactive substance is the time during which:
(A) All atoms decay (B) Half of the atoms decay
(C) No atoms decay (D) Activity becomes zero
18. Nuclear fission is:
(A) Combining two nuclei (B) Splitting of a heavy nucleus
(C) Decay of alpha particles (D) Emission of gamma rays
19. Which quantum number specifies the shape of an orbital?
(A) Principal quantum number (B) Azimuthal quantum number
(C) Magnetic quantum number (D) Spin quantum number
20. Which of the following is a colligative property?
(A) Viscosity (B) Surface tension
(C) Osmotic pressure (D) Refractive index
21. Which bond has the highest polarity?
(A) H-Cl (B) H-F
(C) H-Br (D) H-I
22. The geometry of methane (CH_4) is:
(A) Linear (B) Trigonal planar
(C) Tetrahedral (D) Pyramidal
23. The method used for the concentration of bauxite ore is:
(A) Froth flotation (B) Magnetic separation
(C) Leaching (D) Hydraulic washing
24. Which of the following is a reducing agent in the metallurgical extraction of iron?
(A) SiO_2 (B) CO
(C) CaO (D) Al
25. The highest oxidation state of nitrogen is:
(A) 3 (B) 5
(C) -3 (D) 2
26. The reaction of an aldehyde with HCN is an example of:
(A) Nucleophilic addition (B) Electrophilic addition
(C) Nucleophilic substitution (D) Electrophilic substitution

27. The functional group in ketones is:
 (A) -OH (B) -CHO
 (C) -CO- (D) -COOH
28. Aniline is a/an:
 (A) Primary aliphatic amine (B) Primary aromatic amine
 (C) Secondary amine (D) None of the above
29. Which of the following cannot be prepared by Gabriel phthalimide synthesis?
 (A) Aniline (B) Methylamine
 (C) Ethylamine (D) n-Propylamine
30. In physisorption, the forces involved are:
 (A) Ionic bonds (B) Hydrogen bonds
 (C) Van der Waals' forces (D) Covalent bonds
31. Acid rain is caused by which of the following gases?
 (A) CO_2 and CO (B) SO_2 and NO_2
 (C) CH_4 and NH_3 (D) Cl_2 and H_2S
32. The test used for detection of carbohydrates is:
 (A) Biuret test (B) Benedict's test
 (C) Xanthoproteic test (D) Ninhydrin test
33. Werner's theory explains:
 (A) Acid-base behavior (B) Oxidation number
 (C) Structure of coordination compounds (D) Reaction mechanisms
34. Which of the following shows resonance?
 (A) CH_4 (B) CH_3COOH
 (C) C_2H_6 (D) CH_3OH
35. Which reaction is characteristic of alkenes?
 (A) Substitution (B) Addition
 (C) Elimination (D) Rearrangement
36. Which of the following is a density-independent factor?
 (A) Predation (B) Disease
 (C) Natural disasters (D) Competition
37. A typical dicotyledonous root shows which type of vascular bundle?
 (A) Radial (B) Conjoint
 (C) Collateral (D) Bicollateral
38. The term aestivation refers to:
 (A) Arrangement of leaves (B) Arrangement of sepals and petals in flower bud
 (C) Type of inflorescence (D) Seed dormancy
39. Which epithelial tissue forms the lining of blood vessels?
 (A) Cuboidal (B) Columnar
 (C) Squamous (D) Ciliated

40. Which of the following cells in human blood lack a nucleus?
 (A) Neutrophils (B) Lymphocytes
 (C) Erythrocytes (D) Monocytes
41. The repeating unit of nucleic acid is:
 (A) Amino acid (B) Nucleotide
 (C) Nitrogen base (D) Ribose sugar
42. The function of DNA polymerase is to:
 (A) Unwind DNA (B) Link Okazaki fragments
 (C) Synthesize new DNA strands (D) Proofread tRNA
43. Which microbe is used in the production of ethanol?
 (A) Penicillium (B) Lactobacillus
 (C) Rhizobium (D) Saccharomyces cerevisiae
44. Methanogens are most commonly found in:
 (A) Aerated soil (B) Compost pits
 (C) Human intestines (D) Rumen of cattle
45. The most serious threat to biodiversity is:
 (A) Pollution (B) Overexploitation
 (C) Habitat loss and fragmentation (D) Exotic species
46. Which of the following steps is not common in PCR?
 (A) Denaturation (B) Annealing
 (C) Termination (D) Extension
47. Okazaki fragments are joined by:
 (A) Ligase (B) Helicase
 (C) Polymerase (D) Nuclease
48. Which valve prevents backflow of blood into left atrium?
 (A) Tricuspid (B) Pulmonary
 (C) Bicuspid (mitral) (D) Aortic
49. A condition where a single gene influences multiple traits is called:
 (A) Codominance (B) Pleiotropy
 (C) Polygenic inheritance (D) Epistasis
50. Which enzyme breaks hydrogen bonds during DNA replication?
 (A) Ligase (B) Polymerase
 (C) Helicase (D) Nuclease
51. In the English alphabet, which letter is 10th from right?
 (A) P (B) Q
 (C) R (D) S
52. How many such letters are there in the word 'CATEGORY' which remains same in its position, when they are arranged in alphabetical order?
 (A) None (B) One
 (C) Two (D) Three

53. How many such letters are there in the word 'MARTINA'. Which remain same in its position, if they are arranged in alphabetical order?
- (A) One (B) Two
(C) Three (D) Four
54. The distinct letters of the word EXTRAORDINARY are arranged in alphabetic order. Then, the letter in the fifth position from left is
- (A) N (B) O
(C) I (D) A
55. How many three letter meaningful words can be formed from the word TEAR beginning with 'A' and without repeating any letter within that word?
- (A) One (B) Three
(C) Five (D) Two
56. If 'Genuine : Authentic' then what is the correct alternative for Mirage : ?
- (A) Reflection (B) Image
(C) Illusion (D) Hideout
57. If 'Pyramid : Egypt' then what is the correct alternative for Eiffel Tower : ?
- (A) Spain (B) France
(C) Canada (D) Japan
58. If 'Burglar : House' then what is the correct alternative for Pirate : ?
- (A) Sea (B) Ship
(C) Sailor (D) Crew
59. If 'Dress : Tailor' then what is the correct alternative for Carpenter: ?
- (A) Wood (B) Furniture
(C) Leather (D) Cloth
60. If 'Ocean : Water' then what is the correct alternative for Glacier:?
- (A) Cooling (B) Cave
(C) Ice (D) Mountain
61. 'Cardiologist' is related to 'Heart' in the same way as 'Neurologist' is related to
- (A) Ears (B) Brain
(C) Lungs (D) Teeth
62. Select the pair that has the same relationship as Cow : Milk
- (A) Bird: Fly (B) Hen : Egg
(C) Eagle : Clutch (D) Goat : Bleat
63. Select the pair that has the same relationship as Book : Chapter
- (A) Pen : Pencil (B) Computer : Calculator
(C) Mobile : Landline (D) House : Room
64. Select the pair that has the same relationship as Water : Oxygen
- (A) Helium : Nitrogen (B) Salt : Sodium
(C) Tree : Plant (D) Food : Hunger

65. Which of the following is the same as Eyes : Tongue : Ear : ?
 (A) Finger (B) Thumb
 (C) Knee (D) Nose
66. Find the odd word that does not belong to the group
 (A) Bear (B) Sparrow
 (C) Pigeon (D) Owl
67. If NOVEMBER is coded REBMEVON and DECEMBER is coded REBMECED, then how is OCTOBER coded?
 (A) RETBOCO (B) RTECBRO
 (C) REBTOOC (D) REBOTCO
68. If 'MEAT' is written as 'TEAM', then 'BALE' is written as
 (A) ELAB (B) EABL
 (C) EBLA (D) EALB
69. In a certain code, 'REFRIGERATOR' is coded as 'ROTAREGIRFER'. Which words from the following would be coded as 'NOITINUMMA'?
 (A) ANMOMIUTMI (B) AMNTOMUIIN
 (C) AMMUNITION (D) NMMUNITIOA
70. In a certain language, 'MADRAS' is coded as NBESBT, how is 'BOMBAY' coded in that language?
 (A) DPNCBX (B) CPNCBZ
 (C) CPNCBY (D) DPNCBZ
71. If 'DOG' is called 'COW', 'COW' is called 'LION', 'LION' is called 'BUFFALO', 'BUFFALO' is called 'OX', 'OX' is called 'CAT', then which of the following animals is wild one?
 (A) DOG (B) BUFFALO
 (C) LION (D) OX
72. If 'Lily' is called 'Lotus', 'Lotus' is called 'Rose', 'Rose' is called 'Sunflower' and 'Sunflower' is called 'Marigold', then which will be the national flower of India?
 (A) Lily (B) Lotus
 (C) Rose (D) Marigold
73. Complete the series - A,C,E,G,I,?
 (A) K (B) J
 (C) M (D) L
74. Complete the series - AB, GH, MN, ST, ?
 (A) YZ (B) VW
 (C) UV (D) XY
75. Complete the series - NATURAL, NATURA, ATURA, ?
 (A) ATUR (B) TURA
 (C) RUTA (D) ARUT
76. Who is India's first women President?
 (A) Najma Heptulla (B) Sheila Dikshit
 (C) Vasundhara Raje (D) Pratibha Patil

77. Who is India's first woman IPS officer?
 (A) Sarojini Naidu (B) Kiran Bedi
 (C) Bachendri Pal (D) Indira Gandhi
78. Who among the following has been appointed as a India's first Chief of Defence Staff?
 (A) KM Cariappa (B) Bipin Rawat
 (C) Dalbir Singh Suhag (D) Manoj Mukund Naravane
79. Which of the following Indian state has longest Coastline?
 (A) Maharashtra (B) Gujarat
 (C) Andhra Pradesh (D) Tamil Nadu
80. At which place is Vivekanand Memorial located?
 (A) Mumbai (B) Trivandrum
 (C) Puducherry (D) Kanyakumari
81. INTERPOL stands for
 (A) International Police Organisation (B) International Public Organisation
 (C) Indian Police Organisation (D) Indian Police Officer
82. What is expanded form of am and pm in time?
 (A) After Meridiem and Post Meridiem (B) Ante Meridiem and Post Meridiem
 (C) Ante Meridian and Post Meridian (D) After Meridian and Post Meridian
83. Who is the author of the book 'My Experiments with Truth'?
 (A) Mahatma Gandhi (B) Michael Anderson
 (C) Winston Churchill (D) Jarnes Morris
84. Who had written book 'Ignited minds'?
 (A) Vikram Seth (B) Dalai Lama
 (C) APJ Abdul Kalam (D) Anita Desai
85. Who is the writer of 'Swamy and Friends'?
 (A) Munshi Premchand (B) Raman
 (C) Max Muller (D) RK Narayan
86. Who is renowned as 'Gandhi of Africa'?
 (A) Meer Karzai (B) Nelson Mandela
 (C) Feroz Gandhi (D) MK Gandhi
87. Who is known as 'Iron Man of India'?
 (A) Vallabh Bhai Patel (B) Jawaharlal Nehru
 (C) Raja Ram Mohan Roy (D) Bal Gangadhar Tilak
88. Lady with a Lamp' refers to
 (A) Sarojini Naidu (B) John of Arch
 (C) Mother Teresa (D) Florence Nightingale
89. Which city of India is known as 'The Athens of the East'?
 (A) Allahabad (B) Patna
 (C) Madurai (D) Kochi

90. The Headquarters of the Southern Naval Command of the Indian Navy is located at which of the following places?
(A) Karwar (B) Kochi
(C) Thiruvananthapuram (D) Chennai
91. Highest award given to civilian in India is
(A) Bharat Ratna (B) Padma Vibhushan
(C) Shravan Award (D) None of the above
92. Which is the highest literary prize given by the Government of India?
(A) Sahitya Akademi Award (B) Kalidas Samman
(C) Saraswati Samman (D) Jnanpith Award
93. The Nobel Prize was instituted by which country?
(A) USA (B) UK
(C) Russia (D) Sweden
94. Pulitzer prize is awarded for outstanding work in the field of
(A) Science and Technology (B) Environmental Studies
(C) International Understanding (D) Literature and Journalism
95. The 'Dronacharya Award' is given to
(A) Sportsmen (B) Coaches
(C) Umpires (D) Sports Editors
96. National Defence Academy is located at
(A) Mount Abu (B) Hyderabad
(C) Khadakwasla (D) New Delhi
97. Who appoints the members of the State Public Service Commission?
(A) President
(B) Governor
(C) Chairman, Union Public Service Commission
(D) Chairman, State Public Service Commission
98. The Chief Election Commissioner of India is appointed by
(A) Lok Sabha (B) Prime Minister
(C) President (D) Chief Justice
99. Which of the following committee is associated with the 'Sexual assault against women'?
(A) Justice Verma Committee (B) Rakesh Mohan Committee
(C) Barucha Committee (D) Pilani committee
100. What is the national game of India?
(A) Cricket (B) Hockey
(C) Football (D) Tennis