

BSF POLYTECHNIC, CSMT, BSF TEKANPUR
ENTRANCE TEST FOR SESSION 2011-2012

TIME: Two Hours

MAX MARKS: 100

ROLL NO.....

NAME.....

DATE.....

FATHER'S NAME.....

RANK.....

SIGNATURE OF INVIGILATORS

1.....

2.....

1. Which of the following is an improper fraction?
 (a) $1/3$ (b) $3/4$
 (c) $7/6$ (d) $4/5$
2. The graph of $y = 1$ is a line parallel to
 (a) x-axis (b) y-axis
 (c) both x and y-axis (d) Line $y=x$
3. On both the ends of a diameter of a circle, tangents are drawn. These tangents will be
 (a) Parallel (b) Non Parallel
 (c) Straight (d) Perpendicular
4. The number of vertices in a cube is
 (a) 6 (b) 8
 (c) 10 (d) 12
5. Mean of first six multiples of 4 will be
 (a) 13.5 (b) 14.5
 (c) 14 (d) 16
6. If $2x^2+5xy+3y^2+x+ay-10 = (2x+3y+b)(x+y-2)$, then the value of a and b will be
 (a) 1 and -5 (b) -1 and -5
 (c) -1 and 5 (d) -2 and -5
7. If A and B are two sets, such that $B \subset A$ then $A \cap B$ will be equal to
 (a) A (b) B
 (c) A' (d) B'
8. Set $A = \{1,2,3\}$, $B = \{3,4\}$ and $C = \{4,5,6\}$ then $A \cup (B \cap C)$
 (a) $\{1,2,5,6\}$ (b) $\{3\}$
 (c) $\{1,2,3,4,5,6\}$ (d) $\{1,2,3,4\}$
9. $\sqrt{\left\{\frac{(\sec \theta - 1)}{\sec \theta + 1}\right\}} + \sqrt{\left\{\frac{(\sec \theta + 1)}{(\sec \theta - 1)}\right\}} =$
 (a) $2 \operatorname{cosec} \theta$ (b) $2 \sin \theta / \operatorname{vsec} \theta$
 (c) $2 \cos \theta$ (d) $2 \sec \theta$
10. Multiplicative identity is
 (a) 1 (b) 0
 (c) -1 (d) 2
11. Which number is a natural number
 (a) -8 (b) 2
 (c) 0 (d) 1.2
12. If the roots of equation $ax^2+bx+c=0$ are equal, then the value of c will be
 (a) $-b/2a$ (b) $b/2a$
 (c) $-b^2/2a$ (d) $b^2/2a$
13. The value of $\sqrt{16 + \sqrt{25}}$ will be
 (a) $\sqrt{41}$ (b) 9
 (c) 3 (d) $\sqrt{3}$
14. HCF of $6(x^2 - 4)$ and $15(x^3 - 8)$ is
 (a) $15(x^3 - 8)$ (b) $6(x^2 - 4)$
 (c) $6(x+2)$ (d) $3(x-2)$
15. In ΔABC , $\angle A = 100^\circ$ and $AB = AC$, then $\angle B$ will be
 (a) 100° (b) 60°
 (c) 40° (d) 20°
16. If $a + b = 10$ and $ab = 21$ then $a^3 + b^3$ will be
 (a) 350 (b) 370
 (c) 390 (d) 400
17. If $\frac{a+b}{c+d} = \frac{a-b}{c-d}$ then $\frac{a}{b}$ is equal to
 (a) $\frac{c+d}{c}$ (b) $\frac{c-d}{d}$
 (c) $\frac{c}{d}$ (d) $\frac{d}{c}$
18. The LCM of $(x^2 - 3x + 2)$ and $(x^3 - 5x^2 + 6x)$ is
 (a) $x(x-1)(x-2)(x-3)$
 (b) $(x+1)(x+2)(x+3)$
 (c) $x(x+1)(x+2)(x+3)$
 (d) $(x-2)$
19. If $7x+4y=56$ and $9x-2y=22$, then the value of x, y is
 (a) 7,4 (b) -4,7
 (c) 4,-7 (d) 4,7

20. A number is made of two digits. The sum of digits is 13. If the number is 27 more than the Number obtained by interchanging the digits. Then the digit at ten's place of original number is
 (a) 9 (b) 8
 (c) 7 (d) 6
21. Successive discounts 10% and 30% is equivalent to a single discount of
 (a) 40% (b) 35%
 (c) 38% (d) 37%
22. 180 oranges are distributed 70 boys & girls, such that each boy gets 2 and each girl gets 3 oranges. Then the number of boys is
 (a) 70 (b) 25
 (c) 30 (d) 40
23. If $(1+x) : (3+x) = (3+x) : (6+x)$, then x is equal to
 (a) 12 (b) 8
 (c) 6 (d) 3
24. Third proportion of 4, 10 will be
 (a) 25 (b) 5
 (c) 4 (d) 3
25. Area of an equilateral triangle $36\sqrt{3}$ cm². The length of side of the triangle is
 (a) 36 cm (b) 16 cm
 (c) 32 cm (d) 12 cm
26. If the length of the minute hand of a clock is 15 cm, how much distance will it take in 40 minute. Take $\pi = 3.14$.
 (a) 31.5 cm (b) 72.8 cm
 (c) 24.1 cm (d) 62.8 cm
27. Mean of distribution is 16.5 and median is 14.5, then mode will be
 (a) 8.5 (b) 9.0
 (c) 10.5 (d) 9.5
28. A cylinder covers a sphere whose surface area is S. Then curved surface of cylinder will be
 (a) S (b) 2S
 (c) 3S (d) 4S
29. In a single throw of a dice, the probability of getting a multiple of 3 will
 (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
 (c) $\frac{1}{6}$ (d) $\frac{2}{3}$
30. Diameter of a circle is 20 cm, from the centre of the circle at a distance of 8 cm two chord are situated. The length of each chord will be
 (a) 5 cm (b) 6 cm
 (c) 10 cm (d) 12 cm
31. A molecule which is formed by sharing of four electrons :
 a) Nitrogen (N₂) (b) Oxygen (O₂)
 c) Hydrogen (H₂) (d) Chlorine (Cl₂)
32. Most electronegative element of the following
 a) Hydrogen (b) Sulphur
 c) Chlorine (d) Phosphorus
33. The substance which retards a chemical reaction is called
 a) Auto catalyst (b) Positive catalyst
 c) Negative catalyst (d) Catalytic poison
34. A substance which act as catalytic poison
 a) Pt (b) Mo
 c) Fe (d) AS₂ S₃
35. Electroplating depends upon :
 a) Principle of faraday (b) Newton's law
 c) Graham's law (d) Arrhenius law
36. The smell of petrol is due to
 a) Compounds of phosphorus
 b) Compounds of sodium
 c) Compounds of sulphur
 d) None of these
37. The property whose value increases when one moves from left to right in a period :
 a) Metallic property
 b) Electropositive property
 c) Atomic volume
 d) Non metallic property.
38. In the formation of chemical bond :
 a) Energy decreases
 b) Energy increases
 c) Energy neither decreases nor increases
 d) None of the above
39. Proton and neutron are collectively known as
 a) Deuteron (b) Positron
 c) Meson (d) Nucleon
40. Heaviest particle is :
 a) Neutron (b) Proton
 c) Meson (d) Electron
41. Which of the following has highest number of atoms
 a) 24g C (12) (b) 56g Fe (56)
 c) 27 g Al (27) (d) 108g Ag (108)
42. Formalin is an aqueous solution of
 a) Ethanol (b) Acetaldehyde
 c) Acetic acid (d) Formaldehyde

43. The vulcanization process involves the heating of natural rubber with
 a) Sulphur b) Carbon
 c) Phosphorus d) Oxygen
44. Limestone on heating gives:
 a) Washing soda b) Plaster of Paris
 c) Quicklime d) Slaked lime
45. Plaster of Paris is obtained by heating
 a) Gypsum b) Limestone
 c) Sodium carbonate d) Calcium sulphate
46. The valency of the element having 9 proton in the nucleus is
 a) 5 b) 1
 c) 8 d) 3
47. Sulphide ores are generally concentrated by
 a. Froth floatation b. Magnetic separation
 c. Gravity separation d. By hand picking
48. In esterification, the reaction takes place between
 a. Alcohol and Ether b. Alcohol and Ester
 c. Alcohol and Carboxylic acid
 d. Alcohol and ketone
49. Elements having same number of valence electrons in their atoms have
 a. Similar combining capacities
 b. Similar chemical properties
 c. Similar atomic size
 d. Similar metallic properties
50. The most basic oxide is
 a. Na_2O b. Al_2O
 c. SO_2 d. NO_2
51. Gram molecular mass of CaCO_3 is
 a. 100 b. 100u
 c. 100gm d. all the above
52. The pair of isotopes is
 a. $^{35}_{17}\text{Cl}$ and $^{37}_{17}\text{Cl}$
 b. $^{40}_{18}\text{Ar}$ and $^{40}_{20}\text{Ca}$
 c. ^2_1H and ^3_1H
 d. All the above
53. In washing machine water can be separated from wet clothes
 a. By Evaporation b. By Chromatography
 c. By Centrifugation d. By Sublimation
54. When conc. H_2SO_4 comes in contact with sugar it becomes black due to
 a. Hydrolysis b. Hydration
 c. Decolourisation d. Dehydration
55. Oleum is chemically known as
 a. H_2SO_3 b. H_2SO_5
 c. $\text{H}_2\text{S}_2\text{O}_7$ d. $\text{H}_2\text{S}_2\text{O}_8$
56. Gun metal is an alloy of:
 a. Cu & Al b. Cu, Sn & Zn
 c. Cu, Zn & Ni d. Cu & Sn
57. A compound in which substitution reaction is possible:
 a. CH_4 b. C_2H_2
 c. CO d. CO_2
58. Gold foil alpha particle scattering experiment was performed by:
 a. Dalton b. Goldstein
 c. Rutherford d. Thomson
59. Mass of an electron is :
 a. 9.1×10^{-31} g b. 9.1×10^{-31} kg
 c. 1.6×10^{-9} g d. 1.6×10^{-9} kg
60. Chemical formula of rust is
 a. Fe_2O_3 b. FeCO_3
 c. $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$ d. $\text{FeCO}_3 \cdot x\text{H}_2\text{O}$
61. The point at the centre of lens is called
 a) Pole b) Optical centre
 c) Focus d) Aperture
62. S.I. Unit of current is
 a) Ampere b) Coulomb
 c) Ohm d) Joule
63. The focal length of a plane mirror is
 a) 0 b) 10 Cm
 c) 20 Cm d) Infinity
64. Maximum work done if angle between force and displacement.
 a) 0° b) 90°
 c) 30° d) 180°
65. The direction of magnetic field produced by current carrying straight Conductor can be found by
 a) Right hand Fleming rule
 b) Left hand Fleming rule
 c) Right hand screw rule
 d) None
66. Force on a current carrying conductor in a magnetic field depends upon
 a) Length of conductor
 b) Current in the Conductor
 c) Magnitude of magnetic field
 d) All of these
67. Name of safety device used in our home is
 a) Fuse b) Main Board
 c) Meter d) Plug

68. An electric bulb is rated at 220 V, 100w, then its resistance will be
 a) 242 b) 968
 c) 1936 d) 484
69. 1 Kwh is equal to
 a) 1000 watt Sec b) 3.6×10^5 J
 c) 3.6×10^1 J d) 3.6×10^6 J
70. According to the Cartesian sign convention focal length of a convex lens is
 a) Positive
 b) Negative
 c) Sometime positive and sometime negative
 d) None
71. Wave theory of light was proposed by
 a) Newton b) Huygens
 c) Cavendish d) Lap lace
72. Sound wave is
 a) A transverse wave b) A longitudinal wave
 c) A Radio Wave d) None of the above
73. The total internal reflection takes place if a light goes from
 a) rarer medium to denser medium
 b) denser medium to rarer medium
 c) Rarer to rarer medium
 d) denser to denser medium
74. The gravity is measured in
 a) N b) Kg
 c) N/Kg d) $\text{N/kg}^2\text{m}^2$
75. A boy is standing at a distance of 1 m in front of a plane mirror. The distance between the boy and his image is
 a) 1 m b) 2 m
 c) 1.5 m d) 3 m
76. Light year is the unit of
 a) Time b) Distance
 c) Velocity d) Intensity of light
77. The power of a lence having focal—length 50 cm is
 a) 1 D b) 2 D
 c) 3 D d) 0.2 D
78. If the Current in a conductor is doubled, then the rate of rise of temperature
 a) Halved b) Remain same
 c) Doubled d) Four time
79. A monochromatic beam passes from denser to rarer medium. As a result
 a) Its velocity increase
 b) It velocity decrease
 c) Its frequency increases
 d) Its frequency decreases
80. The power consume three bulb each of 60 Watt connected in parallel across 220 V line, shall be
 a) 20 W b) 60 W
 c) 180 W d) 220 W
81. Solar radiation consists of
 a) Infrared wavelength
 b) visible wavelength
 c) Ultraviolet wave length
 d) all of the above
82. Which of the following is the best conductor of electricity
 a) Copper b) Aluminium
 c) Silver d) Carbon
83. The S.I. Unit of density of a substance is
 a) g/cm^3 b) Kg/m^3
 c) N/m^3 d) N/cm^3
84. If 0.1% increase in length due stretching occurs, the percentage increase in resistances of wire will be
 a) 0.2% b) 2%
 c) 1% d) 0.1%
85. In a conductor, a charge of 4 C flows for 2 sec. The value of electric current will be
 a) 4 A b) 3 A
 c) 2 A d) 1 A
86. The rate of transmission of heat is maximum in
 (a) Radiation (b) Convention
 (c) Forced convection (d) Conduction
87. The weight of body at the centre of the earth
 (a) Same as on the earth
 (b) Half on that on surface
 (c) In finite (d) Zero
88. Current of 4.8 A is flowing through a conductor the number of electrons per second will be
 (a) 3×10^{19} (b) 7.68×10^{21}
 (c) 7.68×10^{20} (d) 3×10^{20}
89. A ball is dropped from height h and another from 2h .The ratio of the time taken by two balls to reach the ground is
 (a) $1:\sqrt{2}$ (b) $\sqrt{2}:1$
 (c) 2:1 (d) 1:2

90. A magnetic field can be produced by
(a) Moving charge (b) A changing electric field
(c) Both of these (d) Name of above
91. Since 1975 Jack.....in this office and he is still here now.
(a) works (b) has been working
(c) is working (d) has worked
92. We don't know how we.....without a servant tomorrow.
(a) have managed (b) managed
(c) shall manage (d) are managing
93. Make haste, lest you.....miss the train.
(a) might (b) shall (c) should (d) would
94. I have nothing in common.....him.
(a) at (b) with
(c) about (d) for
95. He spends money...it grew in his garden.
(a) as far as (b) as if
(c) in case (d) in spite of
96. In Computer the plotter is an
(a) Input Device (b) Output Device
(c) Memory Device (d) None of these
97. Which of the following is known as the 'Father of the Computer' ?
(a) Charles Darwin (b) Charles Babbage
(c) Charles Dickens (d) Newton
98. Alphabet 'A' is related to which number system
(a) Binary (b) Octal
(c) Decimal (d) Hexadecimal
99. Binary Conversion of Decimal number '7' is
(a) 1000 (b) 1111
(c) 100 (d) 111
100. In a Flow Chart the rectangle shows
(a) Process Box (b) Decision Box
(c) Input/Output Box (d) Connector