Atomic Energy Central School No.4 Rawatbhata

MCQ Test (July 2018-19)

Class XII (Physics, Chemistry,Mathematics)

Time 2 Hours 30 Min MM:100

1. Two wires of equal lengths, equal diameters and having resistivity $\rho_1$andρ^2 are connected in series .The equivalent resistivity of the combination is....

(A) $(\rho^1+\rho_2)$ (B) $(\rho_1+\rho_2)/2$ (C) $\rho_1\ \rho_2/(\rho_1+\rho_2)$ (D) $\sqrt{\rho_1\ \rho_2}$

2. when a cell is connected to a resistance R_2 the rate at which heat is generated in it is the same as when the cell is connected to a resistance $R_1>R_2$ the internal resistance of the cell is....

(A) $(R_1- R_2)$ (B) $(R_1- R_2)/2$ (C) R_1R_2/R_1+R_2 D $\sqrt{R_1R_2}$

3. The effective resistance of a n number of resistors connected in parallel in x ohm. When one of the resistors is removed, the effective resistance becomes y ohm. The resistance of the resistor that is removed is...

(A) xy/x+y (b) xy/y-x (C) (y-x) (D) $\sqrt{xy}$

4. Length of a wire of resistance RΩis increased to 10 times, so its resistance becomes 1000Ω therefore R=.... (The volume of the wire remains same during increase in length)

(A) 0.01 Ω (B) 0.1 Ω (C) 1 Ω (D) 10 Ω

5. On applying an electric field of 5×10^{-8} Vm^{-1} across a conductor, current density through it is 2.5 Am^{-2} the resistivity of the conductor is....

(A) 1×10^{-8} Ω-m (B) 2×10^{-8} Ω-m (C) 0.5×10^{-8} Ω-m (D) 12.5×10^{-8} Ω-m

6. Area of cross-section of a copper wire is equal to area of a square of 2mm length It carries a current of 8A Find drift velocity of electrons (Density of free electrons in copper = 8×10^{28} m^{-3})

(A) 1.56×10^{-2}m/sec. (B) 1.56×10^{-4}m/sec (C) 3.12×10^{-2}m/sec (D) 3.12×10^{-3}m/sec

7. Two batteries each of emf 2V and internal resistance 1 Ωare connected in series to a resistor R. Maximum Possible power consumed by the resistor =

(A) 3.2 W (B) 16/9 W (C) 8/9W (D) 2W

8. In an experiment to measure the intenal resistance of a cell by a potentiometer it is found that all the balance points at a length of 2m when the cell is shunted by a 5 ohm resistence and is at a length of 3m when the cell is shunted by a 10 ohm resistance, the internal resistance of the cell is then:

(A) 1.5 Ω (B) 10 Ω (C) 15 Ω (D) 1 Ω

9. Two wires of the metal have the same length but their cross-sections are in the ratio 3:1 They are joined in series: The resistance of the thicker wire is 10Ω. The total resistance of the combination will be

(A) 40 (B) 40/ 3 (C) 5 /2 (D) 100

10. A wire of length L is drawn such that its diameter is reduced to half of its original diameter. If theresistance of the wire were 10Ω, its new resistance would be.

(A) 40 Ω (B) 60 Ω (C) 120 Ω (D) 160 Ω

11. Two wires of resistances R_1 and R_2 have temperature coeffcient of resistances $\alpha_1$and $\alpha_2$respectively they are joined in series the effective tempercture coefficient of resistance is ....

(A) $\frac{\alpha_1+\alpha_2}{2}$ (B) $\sqrt{\alpha_1\alpha_2}$ (C)$\frac{\alpha_1R_1+\alpha_2R_2}{R_1+R_2}$ (D)$\frac{\sqrt{\alpha_1\alpha_2R_1R_2}}{R_1^2+R_2^2}$

12. Which of the following has negative temperature coefficient of resistance?

(A) Fe (B) C (C)Mn(D) Ag

13. A wire 50cm long and 1 mm^2 in cross-section carries a current of 4A when connected to a 2V battery. The resistivity of the wire is:

(A) 2×10^{-7} ohm-m (B) 5×10^{-7} ohm-m (C) 4×10^{-6} ohm-m (D) 1×10^{-6} ohm-m

13. A parallel combination of three resistors takes a current of 7.5 A form a 30 V supply, It the two resistors are 10Ωand 12Ωfind which is the third one?

(A) 4 Ω (B) 15 Ω (C) 12 Ω (D) 22 Ω

14. The drift velocity of free electrons through a conducting wire of radius r, carrying current I, is if the same current is passed through a conductor of radius 2r what will be the drift velocity?

(A) V_d /4 (B) Vd (C) 2Vd (D) 24Vd

15. A carbon resistor has a set of coaxial coloured rings in the order brown, violet brown and silver. The value of resistance (in ohms) is.

(A) $(27 \times 10) \pm 5\ \%$ (B) $(27 \times 10) \pm 10\ \%$ (C) $(17 \times 10) \pm 5\ \%$ (D) $(17 \times 10) \pm 10\ \%$

16. The masses of three wires of copper are in the ratio of 1:3:5 and their lengths are in the ratio of 5:3:1. The ratio of their electrical resistance is:

(A) 1:1:1 (B) 1:3:5 (C) 5:3:1 (D) 125:15:1

17. A cross a wire of length l and thickness d, a p.d of V is applied. If the p.d is doubled the drift velocity becomes....

(A) Becomes double (B) becomes half (C) Close not change (D) becomes Zero

18. Two resistors when connected in parallel have an equivalent of 2Ωand when in series of 9Ωthe values of the two resistors are.

(A) 2Ωand 9Ω(B) 3Ωand 6Ω(C) 4Ωand 5Ω(D) 2Ωand7Ω

19. Which is the dimensional formula for conductance from the give below?

(A) $M^1L^2T^{-3}A^2$ (B) $M^1L^{-2}T^{-3}A^2$ (C) $M^1L^{-3}T^{-3}A^{-2}$ (D) $M^1L^{-3}T^3A^2$

20. Resistivity of material of a conducting wire is 4×10^{-8}Ω-m volume of the wire is $4m^3$ and itsresistance is 4ΩTherefore its length will be.

(A) 500 m (B) 5000 m (C) 20,000 m (D) 4×10^{-5} m

21. How would you arrange 48 cells each of e.m.f 2V and internal resistance 1.5Ωso as to pass maximum current through the external resistance of 2Ω?

(A) 2 cells in 24 groups (B) 4 cells in 12 groups

(C) 8 cells in 6 groups (D) 3 cells in 16 groups

22. How many dry cells, each of emf 1.5V and internal resistance 0.5Ω, much be joined in series with a resistor of 20Ωto give a current of 0.6A in the circuit?

(A) 2 (B) 8 (C) 10 (D) 12

23. Two electric bulbs whose resistances are in the ratio of 1:2 are connected in parallel to a constant voltage source the power dissipated in them have the ratio.

(A) 1:2 (B) 1:1 (C) 2:1 (D) 1:4

24. If the above two bulbs are connected in series, the power dissipated in them have the ratio: (A) 1:2 (B) 1:1 (C) 2:1 (D) 1:4

25. An electric kettle has two coils. when one of them is switched on, the water in the kettle boils in 6 minutes. When the other coil is switched on, the water boils in 3 minutes If the two coils are connected in series the time taken to boil water in the kettle is:

(A) 3 minutes (B) 6 minutes (C) 2 minutes (D) 9 minutes

26. Two heater wires of equal length are first connected in series and then in parallel The ratio of heat produced in the two cases is....

(A) 2:1 (B) 1:2 (C) 4:1 (D) 1:4

27. The drift velocity of free electrons in a conductor is v, when a current. I is flowing in it If both the radius and current are doubled, then drift velocity will be.

(A) V/4 (B) V/2 (C) 4V (D) 2V

28. At what temperature will the resistance of a copper wire be three times its value at 0^0C ? (Given: temperature coefficient of resistance for copper = $4\times10^{-30}C^{-1}$)

(A) 400^0C (B)) 450^0C (C) 500^0C (D)) 550^0C

29. There are n resistors having equal value of resistance r. First they are connected in such a way that the possible minimum value of resistance is obtained. Then they are connected in such a way that possible maximum value of resistance is obtained the ratio of minimum and maximum values of resistances obtained in these way is.

(A) 1/*n* (B) n (C) n^2 (D) $1/n^2$

30. Temperature of a conductor increases by 5degC passing electric current for some time. The increase in its temperature when double current is passed through the same conductor for the same timeis.... ^{o} C

(A) 10 (B) 12 (C) 16 (D) 20

31. The effective resistance between the points A and B in the given Network shown in figure will be.

(A) 9 Ω (B) 12 Ω (C) 18 Ω (D) 7.5 Ω

32. Thirteen resistances each of resistance R are connected in the circuit as shown in the figure the effective resistance between A and B is....

(A) 2R ohm (B) (4R/3) ohm (C) (2R/3) ohm (D) R

33. Five equal resistances each of resistances R are connected as shown in the figure A battery of V volt is connected between A and B. The current flowing in AFCEB=

(A) 3V/R (B) V/R (C) V/2R (D) 2V/R

34. Which of the following statement is correct?

(A)E_{Cell} and $\Delta_r G$ of cell reaction both are extensive properties.

(B)E_{Cell} and $\Delta_r G$ of cell reaction both are intensive properties.

(C)E_{Cell} is an intensive property while ΔrG of cell reaction is an extensive property.

(D)$E_{Cell}$is an extensive property while ΔrG of cell reaction is an intensive property.

35. The difference between the electrode potentials of two electrodes when no current is drawn through the cell is called

(A) Cell potential (B) Cell emf(C) Potential difference (D) Cell voltage

36. Which of the following statement is not correct about an inert electrode in a cell

(A) It does not participate in the cell reaction.

(B) It provides surface either for oxidation or for reduction

(C) It provides surface for conduction of electrons.

(D) It provides surface for redox reaction.

37. An electrochemical cell can behave like an electrolytic cell when

(A)$E_{cell} = 0$ (B)$E_{cell} > E_{ext}$ (C)$E_{ext} > E_{cell}$ (D)$E_{cell} = E_{ext}$

38. Which of the statements about solutions of electrolytes is not correct?

(A) Conductivity of solution depends upon size of ions.

(B) Conductivity depends upon viscosity of solution.

(C) Conductivity does not depend upon solvation of ions.

(D)Conductivity of solution increases with temperature.

39. Using the Data given below, find out the strongest reducing agent

$E^{\ominus}_{Cr_2O_7^{2-}/Cr^{3+}} = 1.33V$ $E^{\ominus}_{Cl_2/Cl^-} = 1.36V$

$E^{\ominus}_{MnO_4^-/Mn^{2+}} = 1.51V$ $E^{\ominus}_{Cr^{3+}/Cr} = -0.74V$

a)Cl^- b) Cr c) Cr^{3+} d) Mn^{2+}

40. Use the data given in Q.39 and find out which of the following is the strongest oxidizing agent.

(A)Cl^- (B) Mn^{2+} (C) $MnO4^-$ (D) Cr^{3+}

41. Using the data given in Q.39 find out in which option the order of reducing power is correct.

(A) Cr^{3+}<Cl^-< Mn^{2+}< Cr (B) Mn^{2+}<Cl-< Cr^{3+} < Cr

(C) Cr^{3+}<Cl^-< $Cr_2O_7^{2-}$< MnO_4- (D) Mn^{2+}< Cr^{3+}<Cl^-< Cr

42. Use the data given in Q.39 and find out the most stable ion in its reduced form.

(A)Cl^- (B) Cr^{3+} (C) Cr (D) Mn^{2+}

43. Use the data of Q.39 and find out the most stable oxidised species.

(A) Cr^{3+} (B) MnO_4^- (C) Cr_2O^{--} (D) Mn^{2+}

44. The quantity of charge required to obtain one mole of Al from Al2O3 is

(A) 1F (B) 6F (C) 3F (D) 2F

45. The cell constant of a conductivity cell

(A)changes with change of electrolyte.

(B)changes with change of concentration of electrolyte.

(C)changes with temperature of electrolyte. (D) remains constant for a cell.

46. While charging the lead storage battery

(A) $PbSO_4$ anode is reduced to Pb. (B) $PbSO_4$ cathode is reduced to Pb.

(C) $PbSO_4$ cathode is oxidised to Pb. (D) PbSO4 anode is oxidised to PbO_2.

47. The positive value of the standard electrode potential of Cu^{2+}/Cu indicates that

(A)this redox couple is a stronger reducing agent than the H+/H_2 couple.

(B)this redox couple is a stronger oxidising agent than H+/H_2.

(C) Cu can displace H_2 from acid. (D) Cu cannot displace H_2 from acid.

48. Conductivity of an electrolytic solution depends on

(A)nature of electrolyte. (B)concentration of electrolyte.

(C)power of AC source. (D)distance between the electrodes.

49. The charge required for reduction of 1mol MnO_4^- to MnO_2 is

(A) 1F (B) 6F (C) 3F (D) 2F

50. The role of a catalyst is to change:

(A)gibbs energy of reaction. (B)enthalpy of reaction.

(C)activation energy of reaction. (D)equilibrium constant.

51. In the presence of a catalyst, the heat evolved or absorbed during the reaction

(A)increases. (B)decreases. (C)remains unchanged. (D)mayincrease or decrease.

52. Rate law for the reaction A + 2B $\longrightarrow$ C is found to be Rate = k [A][B]

Concentration of reactant 'B' is doubled, keeping the concentration of 'A' constant, the value of rate constant will be_____.

(A)the same (B) doubled (C) quadrupled (D) halved

53. Which of the following statements is incorrect about the collision theory of chemical reaction?

(A) It considers reacting molecules or atoms to be hard spheres and ignores their structural features.

(B) Number of effective collisions determines the rate of reaction.

(C) Collision of atoms or molecules possessing sufficient threshold energy results into the product formation.

(D) Molecules should collide with sufficient threshold energy and proper orientation for the collision to be effective.

54. A first order reaction is 50% completed in 1.26×10^{14} s. How much time would it take for 100% completion?

(A) 1.26×10^{15} s (B) 2.52×10^{14} s (C) 2.52×10^{28} s (D) infinite

55. Which of the following statement is not correct for the catalyst?

(A) It catalyses the forward and backward reaction to the same extent.

(B) It alters ΔG of the reaction.

(C) It is a substance that does not change the equilibrium constant of a reaction.

(D) It provides an alternate mechanism by reducing activation energy between reactants and products.

56. The value of rate constant of a pseudo first order reaction _____.

(A)depends on the concentration of reactants present in small amount.

(B)depends on the concentration of reactants present in excess.

(C) is independent of the concentration of reactants.

(D)depends only on temperature.

57. Rate law cannot be determined from balanced chemical equation if _____.

(A)reverse reaction is involved. (B)it is an elementary reaction.

(C)it is a sequence of elementary reactions. (D)any of the reactants is in excess.

58. During decomposition of an activated complex

(A)energy is always released (B)energy is always absorbed

(C)energy does not change (D)reactants may be formed

59. The rate equation for a reaction: A → B is r = K [A]°. If the initial concentration of the reactant is a moldm–3, the half-life period of the reaction is

a)2a/k b) a/2k c) k/a d) a/k

60. Radioactivity of a sample (z = 22) decreases 90% after 10 years. What will be the half-life of the sample?

a)3 years b)2 years c)5 years d)10 years

61. A catalyst increases the rate of a reaction by:

a)increasing the temperature b)increasing the activation energy

c)decreasing the temperature. d)decreasing the activation energy

62. The minimum additional energy, above the average internal energy, which the. reacting molecules must possess so that their collision result in a reaction is known as?

a)Threshold energy . b)Average kinetic energy. c)Activation energy d)None

Reaction between H_2 and Cl_2 occurs in the presence of sunlight. Its rate is independent of concentration of H_2 and Cl_2 so it is order reaction,

a) Second b) Zero c)Third d)First

63. Which of the following statements are in accordance with the Arrhenius equation?

(A) Rate of a reaction increases with increase in temperature.

(B) Rate of a reaction increases with decrease in activation energy.

(C) Rate constant decreases exponentially with increase in temperature.

(D) Rate of reaction decreases with decrease in activation energy.

64. In a first order reaction, the concentration of the reactant decreases from 0.8 M to 0.4 M in 15 minutes. The time taken for the concentration to change from 0.1 M to 0.025 M is

a)7.5 min b) 15 min c) 30 min d)60min

65. In a zero-order reaction for every 10° rise of temperature, the rate is doubled. If the temperature is increased from 10°C to 100°C, the rate of the reaction will become

a)64 times b) 128 times c) 256 times d)512 times

67. If $y = |\cos x| + |\sin x|$ *then* $\frac{dy}{dx}$ *at* $x = \frac{\pi}{3}$ is

(A) $\frac{1-\sqrt{3}}{2}$ (B) 0 (C) $\left[\sqrt{h^3}\right]$ (D) none of these

68. The differential coefficient of $f(\log_e x)$ w.r. to x, where $f(x) = \log_e x$, is

(A) $\frac{x}{\log_e x}$ (B) $\frac{1}{x}\log_e x$ (C) $\frac{1}{x\log_e x}$ (D) none of these

69. If $f(x) = \cos x.\cos 2x.\cos 4x.\cos 8x.\cos 16x$ *then* $f'\left(\frac{\pi}{4}\right)$ is

(A) $\sqrt{2}$ (B) $\frac{1}{\sqrt{2}}$ (C) 1 (D) none of these

70. If $y = \sec\left(\tan^{-1} x\right)$ *then* $\frac{dy}{dx}$ at x = 1 is equal to

(A) $\frac{1}{\sqrt{2}}$ (B) $-\frac{1}{\sqrt{2}}$ (C) 1 (D) none of these

71. If $xe^{xy} - y = \sin^2 x$ *then* $\frac{dy}{dx}$ at x = 0 is

(A) 0 (B) 1 (C) – 1 (D) none of these

72. If $x = e^{y+e^{y+...to\ \infty}}$ then $\frac{dy}{dx}$ is

(A) $\frac{x}{1+x}$ (B) $\frac{1}{x}$ (C) $\frac{1-x}{x}$ (D) none of these

73. If $y = \log_2(\log_e x)$ then $\frac{dy}{dx}$ is

(A) $\frac{1}{x}\log_2 e \,.\, \log_x e$ (B) $\frac{1}{x}\log_2 x$ (C) $\frac{1}{x}\log_e x$ (D) none of these

74. If $x^y.y^x = 16$ then $\frac{dy}{dx}$ at (2, 2) is

(A) 1 (B) – 1 (C) 0 (D) none of these

75. If $y = x^{1/x}$, the value of $\frac{dy}{dx}$ at x = e is

(A) 1 (B) 0 (C) – 1 (D) none of these

76. The derivative of $\tan^{-1}\frac{2x}{1-x^2}$ with respect to $\sin^{-1}\frac{2x}{1+x^2}$ is

(A) $\frac{1}{1+x^2}$ (B) $\frac{1}{1-x^2}$ (C) 0 (D) 1

77. Let the function y = f(x) be given by $x = t^5 - 5t^3 - 20t + 7$ and $y = 4t^3 - 3t^2 - 18t + 3$, where $t \in (-2, 2)$. Then $f'(x)$ at t = 1 is

(A) $\frac{5}{2}$ (B) $\frac{2}{5}$ (C) $\frac{7}{5}$ (D) none of these

78. If $y = \sin x^0$ and $z = \cos x$ then $\frac{dy}{dz}$ is equal to

(A) $-\cos ec\ x\ .\ \cos x$ (B) $\frac{\pi}{180}\cos ec\frac{\pi x}{180}\ .\ \cos x$

(C) $-\frac{\pi}{180}\cos ec\ .\ \cos\frac{\pi x}{180}$ (D) none of these

79. The derivative of $\tan^{-1}\frac{\sqrt{1+x^2}-1}{x}$ with respect to $\tan^{-1} x$ is

(A) $\frac{\sqrt{1+x^2}-1}{x^2}$ (B) 1 (C) $\frac{1}{1+x^2}$ (D) none of these

80. If $y^2 = P(x)$ is a polynomial of degree 3, then $2\frac{d}{dx}\left(y^3\frac{d^2y}{dx^2}\right)$ equals

(A) $P'''(x) + P'(x)$ (B) $P''(x)P'''(x)$ (C) $P(x)P'''(x)$ (D) a constant

81. If $y = (\sin x)^{\tan x}$, then $\frac{dy}{dx}$ is equal to

(A) $(\sin x)^{\tan x}(1 + \sec^2 x\ \log\ \sin x)$ (B) $\tan x(\sin x)^{\tan x - 1}\cos x$

(C) $(\sin x)^{\tan x}\sec^2 x \log \sin x$ (D) $(\tan x)(\sin x)^{\tan x-1}$

82. If $x^2+y^2=1$, then

(A) $yy''-2(y')^2+1=0$ (B) $yy''+(y')^2+1=0$

(C) $yy''+(y')^2-1=0$ (D) $yy''+2(y')^2+1=0$

83. Let y(x) be a function of x satisfying the relation $\log(x+y)=2xy$, $y'(x)$ at x = 0 is equal to

(A) 0 (B) 1/3 (C) 1 (D) 2

84. If $y=y(x)$ is a function of x satisfying the relation $x\cos y+y\cos x=\pi$, *then* $y''(0)$ equals

(A) 1 (B) – 1 (C) $-\pi$ (D) π

85. Let S denote the set of all polynomials P(x) of degree ≤ 2 such that P(1) = 1, P(0) = 0 and $P'(x)>0\ \forall\ x\in[0,1]$ then

(A) $S=\{(1-a)x^2+ax:0<a<1/2\}$ (B) $S=\{(1-a)x^2+ax:0<a<2\}$

(C) $S=\{(1-a)x^2+ax:0<a<1\}$ (D) $S=\{(1-a)x^2+ax:0<a<3/2\}$

86. $\frac{d^2x}{dy^2}$ equals

(A) $\left(\frac{d^2y}{dx^2}\right)^{-1}$ (B) $-\left(\frac{d^2y}{dx^2}\right)^{-1}\left(\frac{dy}{dx}\right)^{-3}$ (C) $\left(\frac{d^2y}{dx^2}\right)\left(\frac{dy}{dx}\right)^{-2}$ (D) $-\left(\frac{d^2y}{dx^2}\right)\left(\frac{dy}{dx}\right)^{-3}$

87. Let $f(x)=\begin{cases}-1 & ,-2\le x\le 0\\ x-1 & ,0<x\le 2\end{cases}$ then $g(x)=f(|x|)+|f(x)|$ is

(A) differentiable in (-2, 2) (B) differentiable except at x = 0

(C) differentiable except at x = 1 (D) differentiable except at x = 0, x = 1

88. If $f(x)=|x-2|\ and\ g(x)=f(f(x))$, then $\sum_{r=0}^{3} g'(2r-1)=$

(A) 0 (B) 1 (C) – 1 (D) 2

89. Let $f(x)=\begin{cases}x+1, x<0\\ |x-1|, x\ge 0\end{cases}$ and $g(x)=\begin{cases}x+1 & ,x<0\\ (x-1)^2 & ,x\ge 0\end{cases}$

Then the number of points at which the function g(f(x)) is not differentiable is

(A) 0 (B) 1 (C) 2 (D) 3

90. If $y=\sqrt{x+\sqrt{y+\sqrt{x+\sqrt{y+....\infty}}}}$, then $\frac{dy}{dx}$ is equal to

(A) $\frac{1}{2y-1}$ (B) $\frac{y^2-x}{2y^3-2xy-1}$ (C) $^{(2y-1)}$ (D) none of the above

91. Let f is a function defined on [a,b]. Which of the following s not one of the mandatory condition of Mean value theorem:

A)f must be continuous on [a,b] B) f must be differentiable on(a,b)

C) f(a) = f(b) D) None of these

92. $\lim_{x\to 0}\frac{(1-\cos 2x)(3+\cos x)}{x\tan 4x}$ is equal to

A) $\frac{1}{2}$ B) 1 C) 2 D) $-\frac{1}{4}$

93. Let $f(x)= |\cos x|$. Then,

(A) $f$is everywhere differentiable.

(B) $f$is everywhere continuous but not differentiable at $n = n\pi$, $n \in \mathbf{Z}$.

(C) $f$is everywhere continuous but not differentiable at $x=(2n + 1)\pi/2$,$n\in\mathbf{Z}$

(D) none of these.

94. The function $f(x) = |x| + |x – 1|$ is

(A) continuous at 0 as well as at 1. (B) continuous at 1 but not at 0.

(C) discontinuous at 0 as well as at 1. (D) continuous at 0 but not at1

95. The value of c in Mean value theorem for the $f(x) = x(x – 2), x \in [1, 2]$ is

(A)3/2 (B)2/3 (C)1/2 D) – 3/2

96. If $f(x) = x^2 \sin 1/x$, where $x \neq 0$, then the value of the function f at $x = 0$, so thatthe function is continuous at $x = 0$, is

(A) 0 (B) – 1 (C) 1 (D) none of these

97. If $y = \sqrt{\sin x + y}$, then

(A)$\frac{cosx}{2y-1}$ (B)$\frac{cosx}{1-2y}$ (C)$\frac{sinx}{1-2y}$ (D)$\frac{sinx}{2y-1}$

98. If $x = t^2$, $y = t^3$, then$\frac{d\hat{}2y}{dx\hat{}2}$

(A)3/2 (B)3/4t (C)3/2t (D)3/2t

99. The function $f(x) = [x]$, where $[x]$ denotes the greatest integer function, is continuous at

(A) 4 (B) – 2 (C) 1 (D) 1.5

100. The function $f(x) = \begin{cases}\frac{sinx}{x}+\cos x, x<0\\ k, if x\geq 0\end{cases}$ iscontinuous at $x = 0$, then k =?

(A) 3 (B) 2 (C) 1 (D) 1.5
