Most Authentic

ANSWER KEY

of IIT-JEE (Main) 2018

CatalyseR

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(irrespective of question paper set)

(PAPER WITH ANSWER KEY) CODE – B
JEE (MAIN) - 2018
PHYSICS

1. It is found that if ……and P_c are respectively?

Sol. **(3) (.89,.28)**

2. The mass of a hydrogen ……..on the wall is nearly:

Sol. **(3)** 2.35×10^3 N/ m^2

3. A solid sphere of radius ……of the sphere, $\left(\frac{dr}{r}\right)$, is:

Sol. **(1)** $\frac{mg}{3Ka}$

4. Two batteries with e.m.f. ……the load lies between:

Sol. **(4) 11.5 V and 11.6 V**

5. A particle is moving in a circular ……. Its total energy is:

Sol. **(1) ZERO**

6. Two masses $m_1 = 5kg$ and …… to stop the motion is :

Sol. **(BONUS) CLOSEST D**

(4) 27.3 kg

7. If the series limit ……of the Pfund series is:

Sol. **(2)** υ_L / 25

8. Unpolarized light of intensity I ……..... . The angle between polarizer A and C is:

Sol. **(1)** 45°

9. An electron from various ……..... . For large n, (A,B are constants)

Sol. **(3)** $\Lambda_n \approx A+\frac{B}{\lambda_n^2}$

10. The ending of the ammeter for a silicon diode in the given circuit is :

Sol. **(1) 11.5 mA**

11. An electron, a proton ……..between $r_e, r_{p,} r_\alpha$ is:

Sol. **(4)** $r_e < r_p = r_\alpha$

12. A parallel plate capacitor …….charge will be:

Sol. **(3) 1.2 n C**

13. For an RLC circuit …… factor, Q is given by:

Sol. **(3)** $\frac{\omega_O L}{R}$

14. A telephonic communication ……bandwidth of 5 kHz?

Sol. **(1)** 2×10^5

15. A granite rod of 60 cm ……longitudinal vibrations?

Sol. **(1)** **10 kHz**

16. Seven identical circular ……. the point P is:

Sol. **(2)** $\frac{181}{2}MR^2$

17. Three concentric metal shells ……of shell B is :

Sol. **(4)** $\frac{\sigma}{\in_o}\left[\frac{a^2-b^2}{b}+c\right]$

18. In a potentiometer experiment, …….of the cell.

Sol. **(4)** 1.5Ω

19. An EM wave from air ……..following options is correct?

Sol. **(1)** $\frac{^{\in}r_1}{^{\in}r_2}=\frac{1}{4}$

20. The angular width of the ……of each slit.)

Sol. **(3)** $25\,\mu m$

21. A silver atom in a solid…….$=6.02\times10^{23}\,gm\ mole^{-1}$)

Sol. **(4)** **7.1 N/m**

22. From a uniform circular disc …….centre of disc is :

Sol. **(3)** $4MR^2$

23. In a collinear collision, …….after collision, is:

Sol. **(4)** $\sqrt{2}\,\upsilon_0$

24. The dipole moment of a circular loop …… . The ratio $\frac{B_1}{B_2}$ is :

Sol. **(1)** $\sqrt{2}$

25. The density of a material ……the density is :

Sol. **(1)** **4.5 %**

26. On interchanging the resistances, ……interchanging the resistances?

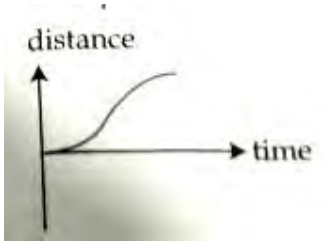
Sol. **(1)** $550\,\Omega$

27. In an a.c. circuit, ……current are, respectively :

Sol. **(4)** $\frac{1000}{\sqrt{2}}, 10$

28. All the graphs below are …….. . Pick it up.

Sol. **(4)**



29. Two moles of an ideal monoatomic …….in its internal energy.

Sol. **(1)** (1) 189 K (2) -2.7 kJ

30. A particle is moving with …… particle is T, then :

Sol. **(1)** $T \propto R^{(n+1)/2}$

MATHEMATICS

31. If the tangent at ……the value of c is:

Sol. **(2)** **95**

32. If L_1 is the line of …….lines L_1 and L_2, is:

Sol. **(4)** $\frac{1}{3\sqrt{2}}$

33. If $\alpha, \beta \in C$ are the distinct roots, ……$\alpha^{101} + \beta^{107}$ is equal to:

Sol. **(1)** **1**

34. Tangents are drawn …….(in sq. units) of ΔPTQ is:

Sol. **(3)** $45\sqrt{5}$

35. If the centres ……..…., then the value of b is:

Sol. **(2)** $\frac{9}{2}$

36. If the system of ……..then $\frac{xz}{y^2}$ is equal to :

Sol. **(4)** 10

37. Let $S = \{x \in R : x \geq 0$ …….. . Then S:

Sol. **(1)** contains exactly two elements.

38. If sum of all the solutions …….. k is equal to:

Sol. **(4)** $\frac{13}{9}$

39. A bag contains 4 red and 6 ……drawn ball is red, is:

Sol. **(4)** $\frac{2}{5}$

40. Let $f(x) = x^2 + \frac{1}{x^2}$ …….value of $h(x)$ is:

Sol. **(2)** $2\sqrt{2}$

41. Two sets A and B are …… . Then :

Sol. **(4)** $A \subset B$

42. The Boolean expression …….is equivalent to:

Sol. **(3)** $\sim p$

43. Tangent and normal are drawn …….value of $\tan\theta$ is:

Sol. **(4)** **2**

44. If $\begin{vmatrix} x-4 & 2x & 2x \\ 2x & x-4 & 2x \\ 2x & 2x & x-4 \end{vmatrix}$ …….(A, B) is equal to:

Sol. **(1)** $(-4,5)$

45. The sum of the co-…….$(x>1)$ is :

Sol. **(2)** **2**

46. Let $a_1, a_2, a_3, \ldots$ ……., then m is equal to :

Sol. **(1)** **34**

47. A straight line through a ……., then the locus of R is:

Sol. **(1)** $3x+2y=xy$

48. The value of $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{\sin^2 x}{1+2^x}dx$ is :

Sol. **(2)** $\frac{\pi}{4}$

49. Let $g(x)=\cos x^2$, ……. and y = 0, is :

Sol. **(3)** $\frac{1}{2}\left(\sqrt{3}-1\right)$

50. For each $t \in R$, let [t] …….equal to t. Then -

Sol. **(1)** is equal to 120.

51. If ……9 items $x_1, x_2, \ldots\ldots, x_9$ is :

Sol. **(1)** 2

52. The integral …….. is equal to :

Sol. **(4)** $\frac{-1}{3\left(1+\tan^3 x\right)}+C$

53. Let …… . Then the set S is equal to :

Sol. **(3)** ϕ (an empty set)

54. Let y = y(x) be the…….. is equal to :

Sol. **(1)** $-\frac{8}{9}\pi^2$

55. Let $\vec{u}$ be a vector coplanar …… is equal to:

Sol. **(3)** **336**

56. The length of the projection ……, $x+y+z=7$ is:

Sol. **(2)** $\sqrt{\frac{2}{3}}$

57. PQR is a triangular park ……of the tower (in m) is :

Sol. **(3)** **100**

58. From 6 different novels and 3 ……. The number of such arrangements is:

Sol. **(3)** **at least 1000**

59. Let A be the sum of the first 20 ……, then λ is equal to:

Sol. **(4)** **248**

60. Let the orthocenter and centroid ……AC as diameter, is :

Sol. **(1)** $3\sqrt{\frac{5}{2}}$

CHEMISTRY

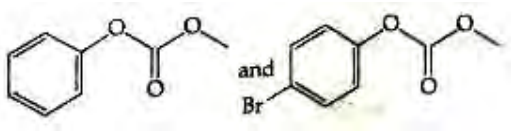
61. Total number of lone pair of electrons in I_3^- is :

Sol. **(1)** **9**

62. Which of the following salts is the most basic in aqueous solution?

Sol. **(4)** CH_3COOK

63. Phenol reacts with methyl ……..A and B are respectively:

Sol. **(1)** 

64. The increasing order of basicity of the following compounds is :

Sol. **(1)** **(2) < (1) < (4) < (3)**

65. An alkali is titrated against an acid with ……..a correct combination?

Sol. **(1)** **Base – Weak; Acid – Strong; End Point – Yellow to pinkish red**

66. The trans-alkenes are formed by the reduction of alkynes with:

Sol. **(1)** $Na / liq. NH_3$

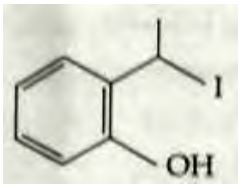
67. The ratio of mass percent of C ……formula of compound $C_X H_Y O_Z$ is:

Sol. **(2)** $C_2H_4O_3$

68. Hydrogen peroxide oxidizes ……formed are, respectively:

Sol. **(1)** H_2O **and** $(H_2O + O_2)$

69. The major product formed in the following reaction is:

Sol. **(2)** 

70. How long (approximate) should ……(Atomic weight of B = 10.8 u)

Sol. **(1)** **3.2 hours**

71. Which of the following lines ……an exothermic reaction?

Sol. **(3)** **A and B**

72. At $518°C$, the rate of decomposition of a ……of the reaction is:

Sol. **(3)** **2**

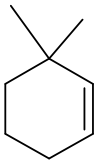
73. Glucose on prolonged heating with HI gives:

Sol. **(3) n-Hexane**

74. Consider the following reaction and statements:……. . The correct statements are:

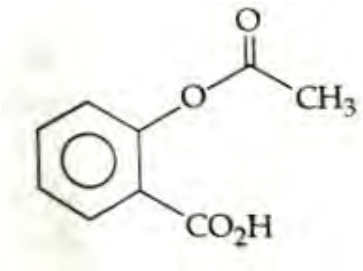
Sol. **(4) (I) and (III)**

75. The major product of the following reaction is :

Sol. **(4)** 

76. Phenol on treatment with CO_2 in the ……H_2SO_4 produces:

Sol. **(3)**

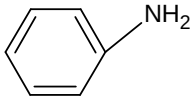


77. An aqueous solution contains ……original concentration of Ba^{2+} ?

Sol. **(1)** $1.1\times10^{-9}M$

78. Which of the following ……nitrogen estimation?

Sol. **(4)**



79. When metal 'M' is …….. . The metal 'M' is:

Sol. **(1) Al**

80. An aqueous solution contains ……ions in aqueous solution is:

Sol. **(4)** 3×10^{-20}

81. The recommended concentration of ……. $\left[3Ca_3\left(PO_4\right)_2.Ca\left(OH_2\right)\right]$ to :

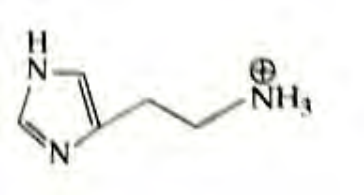
Sol. **(1)** $\left[3Ca_3\left(PO_4\right)_2.CaF_2\right]$

82. The compound that does not produce nitrogen gas by the thermal decomposition is:

Sol. **(2)** $\left(NH_4\right)_2SO_4$

83. The predominant form of ……. Histidine = 6.0)

Sol. **(2)**



84. The oxidation states of ……. respectively are :

Sol. **(1)** +3, 0, and +6

85. Which type of 'defect' has the presence of cations in the interstitial sites?

Sol. **(1)** **Frenkel defect**

86. The combustion of benzene ……constant pressure will be :

Sol. **(2)** –3267.6

87. Which of the following are Lewis acids?

Sol. **(2)** **(2)** BCl_3 *and* $AlCl_3$

88. Which of the following compounds contain(s) no covalent bond(s)?

Sol. **(1)** *KCl*

89. For 1 molal aqueous solution of ……..freezing point?

Sol. **(2)** $\left[Co\left(H_2O\right)_3 Cl_3\right].3H_2O$

90. According to molecular orbital theory, which of the following will not be a viable molecule?

Sol. **(2)** H_2^{2-}

END OF TEST PAPER