

Dr.K.K.R GOWTHAM EDUCATIONAL INSTITUTIONS :: A.P & T.S

Class: 9-NF3,NF4

Marks: 100

Sub: Maths, Physics, Chemistry

Time: 2 1/2 Hrs

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**I. Objective type questions :** **50 × 2= 100 M**

Maths

1. The harmonic conjugate of (4,-2) W.r.to (2,-4) and (7,1) is [     ]  
a. (-8, -14)                      b. 2,3                      c. (-2,-3)                      d. (13,-5)
2. The points (0,-1) (-2,3) (6,7) (8,3) form [     ]  
a. A parallelogram              b. a rectangle              c. a rhombus              d. a square
3. The orthocenter of the  $\Delta^{le}$  formed by A (-1,0) B (-2, 3/4) C (-3, -7/6) [     ]  
a. (-3,-2)                      b. (1,3)                      c. (-1,2)                      d. none
4. Co ordinates of the point dividing the line segment joining A (1,-2) B (4,7) internally in the ratio 1:2 are [     ]  
a. (1,2)                      b. (2,1)                      c. (4,3)                      d. (7,2)
5. The 1<sup>st</sup> and 2<sup>nd</sup> points of trisection of the join of (-2, 11) (-5, 2) are [     ]  
a. (-3, 0) (-4,6)              b. (-3,9) (-4,5)              c. (-3,8) (-4, 5)              d. (-3,-4) (8,-5)
6. Equation of the st line containing the point (1,2) and (3,4) [     ]  
a. X+y+1=0                      b. x-y +1 =0                      c.4x+y=1                      d. x+y=2
7. The equation of sides of  $\Delta^{le}$  are x+y-5 =0, x-y +1=0 and y-1 =0 then the circum centre is [     ]  
a. (2,1)                      b. (1,7)                      c. (2,-2)                      d. (1,-2)
8. If  $6x+8y+7-k(2x+4y+5)=0$  is parallel to y axis then k [     ]  
a. 1                      b. 3                      c. 2                      d. 1
9. If P, Q are two points on the line  $3x+4y+15=0$  such that  $Op = OQ = 9$  then the area  $\Delta OPQ$  [     ]  
a.  $6\sqrt{2}$                       b.  $9\sqrt{2}$                       c.  $12\sqrt{2}$                       d.  $18\sqrt{2}$
10. Image of (2,3) W.r.t to (-1,3) is [     ]  
a. (3,-2)                      b. (1,1)                      c. (-4, 3)                      d. (3,7)
11.  $(\sqrt{1-\sin^2 100}) (\sec 100^0)$  [     ]  
a. -1                      b. 0                      c. 1                      d. 2
12. If  $\tan 20^0 R$  then  $\frac{\tan 250^0 + \tan 340^0}{\tan 200^0 - \tan 110^0} =$  [     ]  
a.  $\frac{1+p}{1-p}$                       b.  $\frac{1-p}{1+p}$                       c. 0                      d.  $\frac{1-p^2}{1+p^2}$
13.  $\text{Sec}\theta + \tan^2\theta = 5$  then  $\text{sec}\theta =$  [     ]

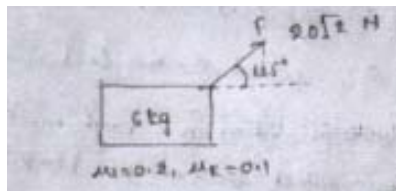


26. A 100 kg box is slides on floor of a truck going at 72 km/h. if the box slides 100m before coming to rest.  $\mu$  is ( $g = 10 \text{ m/s}^2$ ) [      ]

- a. 0.4                      b. 0.2                      c. 0.1                      d. 0.05

27. In the figure shown find acceleration of block and force of friction on it [      ]

- a.  $8/3 \text{ m/s}^2, 4\text{N}$                       b.  $2 \text{ m/s}^2, 4\text{N}$                       c.  $2 \text{ m/s}^2, 8\text{N}$                       d.  $2 \text{ m/s}^2, 8\text{N}$



28. Pulling force making an angle “ $\theta$ ” to the vertical is applied on a block of weight “W” placed on a horizontal table. If the angle of friction is “ $\phi$ ”. The magnitude of the force required to move the body is equal to [      ]

- a.  $\frac{W \cos \phi}{\cos(\theta - \phi)}$                       b.  $\frac{W \sin \phi}{\sin(\theta + \phi)}$                       c.  $\frac{W \tan \phi}{\sin(\theta - \phi)}$                       d.  $\frac{W \sin \phi}{g \tan(\theta - \phi)}$

29. A uniform chain of length  $l$  hangs partly from a table which is kept on equilibrium by friction. The maximum length that can stand without slipping is  $l$  less than coefficient of static friction [      ]

- a.  $\frac{1}{L+1}$                       b.  $\frac{1}{L}$                       c.  $\frac{1}{L-1}$                       d.  $\frac{L}{L-1}$

30. A uniform chain of linear density  $2 \text{ kg gm}^{-1}$ , lies at rest on a horizontal table of coefficient of friction 0.8 with maximum length 32 cm hanging over the edge of the table total mass of the chain is [      ]

- a. 1.44 kg                      b. 0.64 kg                      c. 0.72 kg                      d. 0.52 kg

31. A block of mass 1 kg lies on horizontal surface in the truck, The coefficient of friction between the block and the surface is 0.6. If the acceleration of the truck is  $5 \text{ m/s}^2$  the frictional force acting on the block is [      ]

- a. 2N                      b. 5N                      c. 3N                      d. 6N

32. A object takes 1 second to slide down a rough  $45^\circ$  inclined plane. The time taken to slide down a smooth  $30^\circ$  inclined plane having the same slope length is ( $\mu = 0.5$ ) [      ]

- a.  $\sqrt{2}$  sec                      b.  $\frac{1}{\sqrt{2}}$  sec                      c.  $\frac{1}{2\sqrt{2}}$                       d.  $2^{-1/4}$  sec

33. A body takes  $n$  times as much time to slide down a  $45^\circ$  rough incline as it takes to slide down a smooth  $45^\circ$  incline, the coefficient of friction is [      ]

- a.  $\frac{1}{n^2}$                       b.  $n^2$                       c.  $1 - \frac{1}{n^2}$                       d.  $\frac{1}{\sqrt{1-n^2}}$

34. The angle of friction between two surfaces is  $37^\circ$ . If  $\cos 37^\circ = 4/5$ , coefficient of static friction between those two surfaces is [      ]

- a.  $3/4$                       b.  $4/3$                       c.  $3/5$                       d.  $5/3$

35. A body slipping on a rough horizontal plane move with a acceleration of  $4.0 \text{ m/s}^2$  what is the coefficient of kinetic friction between the block and the plane? [      ]

- a. 0.4                      b. 0.5                      c. 0.6                      d. 0.7

## Chemistry

36. Measurable properties of gases from the given are [     ]  
1. Mass            2. volume            3. Pressure            4. Temperature  
a. Only b,c            b. only b, c, d            c. only c, d            d. a, b, c, d
37. Volume of a gas at  $0^{\circ}\text{C}$  is doubled at \_\_\_\_\_  $^{\circ}\text{C}$  temperature keeping pressure constant is [     ]  
a. 273 K            b.  $2^{\circ}\text{C}$             c.  $243^{\circ}\text{C}$             d.  $546^{\circ}\text{C}$
38. At constant temperature for a given mass of gas, pressure of the gas of volume "v" becomes three times [     ]  
a. P            b. P/4            c. P/3            d. 3P
39. A sample of a given mass of gas at a constant temperature occupies  $95\text{ cm}^3$  under a pressure of  $9.962 \times 10^4\text{ NM}^{-2}$ . At the same temperature its volume at a pressure of  $10.13 \times 10^4\text{ NM}^{-2}$  is [     ]  
a.  $190\text{ cm}^3$             b.  $93.42\text{ cm}^3$             c.  $46.5\text{ cm}^3$             d.  $47.5\text{ cm}^3$
40. Volume of 1 Litre of a gas is nearly equal to [     ]  
a.  $10\text{ dm}^3$             b.  $1\text{ m}^3$             c.  $10^3\text{ m}^3$             d.  $10^3\text{ cm}^3$
41. Ideal gas obeys [     ]  
a. Boyle's Law            b. Charles's Law            c. Avogadro's Law            d. All of the above
42. The density of a gas at STP is  $2\text{ g lLt}$ . Its molecular weight is [     ]  
a. 22.4            b. 56            c. 44.8            d. 30
43. A five litre flask contains 35 gm of  $\text{N}_2$ , 3g of  $\text{H}_2$  and 8g of  $\text{O}_2$  at  $27^{\circ}\text{C}$ . The total pressure exerted by the mixture of these gases is [     ]  
a. 92.4 atm            b. 0.924 atm            c. 9.24 atm            d. 924 atm
44. The rate of diffusion of Nitrogen gas in a diffusion tube. The molecular weight of X is \_\_\_\_\_  $\text{g mole}^{-1}$  [     ]  
a. 63            b. 36            c. 54            d. 45
45. 180ml of Hydro carbon having the molecular weight 16 diffuses in 1.5 min under similar conditions, The time taken by 120ml of  $\text{SO}_2$  to diffuse is [     ]  
a. 2 min            b. 1.5 min            c. 1 min            d. 1.75 min
46. Which of the following is independent of temperature of a gas [     ]  
a. Density            b. Rate of diffusion            c. vapour density            d. RMS velocity
47. According to Kinetic energy of Gases, The energy per mole of a gas is equal to [     ]  
a. RT            b. 3RT            c. 0.5 RT            d. 1.5 RT
48. The kinetic energy of m moles of an ideal gas is given by The expression [     ]  
a.  $\frac{3}{2}\text{ RT}$             b.  $\frac{3}{2}\text{ nRT}$             c.  $\frac{2}{3}\text{ RT}$             d.  $\frac{2}{3}\text{ nRT}$

49. The K.E of 4 moles of  $O_2$  at  $47^\circ C$  is \_\_\_\_\_ [      ]

- a. 1280 Cal                      b. 2560Cal                      c. 1920 Cal      d. 3840 Cal

50. Average velocity of a gas is 13,820 cm/sec Then the RMS Velocity is [      ]

- a. 14,996 cm/Sec              b. 12,250 cm/Sec              c. 10,250 cm/sec              d. 1225 cm/sec