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

Class: 9-NF2 **Marks: 100**

Sub: Maths, physics, chemistry **Time: 2 ½ Hrs**

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I. Objective type questions : **$50 \times 2 = 100$ 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 Δ^{le} formed by A (-1,0) B (-2, ¾) 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^{st} and 2^{nd} 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 Δ^{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 ΔOPQ [ ]
   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. $\left(\sqrt{1-\sin^2 100}\right)$ (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. Secθ + $\tan^2\theta$ =5 then secθ = [ ]

a. 3 b. 2 c. -3 d. b and c

14. The value of $\sin^6\theta+\cos^6\theta+3\sin^2\theta$ is [ ]

a. 0 b. 1 c. 2 d. 3

15. a= secθ- tan θ b= cosecθ+cotθ then a= [ ]

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

16. A+B = 135^0 then (1+cotA) (1+cotB)= [ ]

a. 1 b. 2 c. 3 d. 4

17. If $\sqrt{3}$ cosθ – sinθ is positive then θ lies b/w [ ]

a. $\frac{-2\lambda}{3} to \frac{\lambda}{3}$ b. $\frac{-\lambda}{3} to \frac{\lambda}{2}$ c. $0 to \frac{\lambda}{3}$ d. $\frac{-\lambda}{2} to \frac{\lambda}{2}$

18. Sin 10^0- sin 110^0 +sin 130^0 = [ ]

a. 0 b. -1 c. 1 d. ½

19. Tan 55^0 –tan 10^0 – tan 55^0 tan 10^0 [ ]

a. -1 b. 1 c. $-\sqrt{3}$ d. ½

20. If sinx cosy = ¼ and 3 tan x =4 tany then sin (x-y) = [ ]

a. $\frac{1}{16}$ b. $\frac{7}{16}$ c. ¾ d. $\frac{3}{16}$

Physics

21. A body is thrown with velocity (4i+3j() m/s its maximum height is (g= $10m/s^2$)[ ]

a. 2.5m b. 0.8m c. 0.9m d. 0.45m

22. for a projectile the ratio of maximum height reached to square of flight time is[ ]

a. 5:4 b. 5:2 c. 5:1 d. 10:1

23. A body projected with velocity 30m/s reaches its maximum height in 15 sec. its range is (g= $10m/s^2$) [ ]

a. 45m b. 108m c. 45 $\sqrt{3}$ d. 54m

24. A hose pipe lying on the ground shoots a stream of water upwards at an angle 60^0 to the horizontal at a speed of 20m/s. the water strikes a wall 20m a way at a height of (g= $10m/s^2$)
[ ]

a. 14.64 m b. 7.32m c. 29.28m d. none of these

25. A person throws a bottle into a dustbin at the some height as he is 2m away at an angle of 45^0. The velocity of thrown is [ ]

a. g b. $\sqrt{g}$ c. 2g d. $\sqrt{2}$ g

26. a body is projected horizontally from the tap of tower with a velocity of 30m/s. the velocity of the body 4 sec after projection is (g= 10m/s^2) [ ]

a. 40m/s b. 20m/s c. 50m/s d. 100m/s

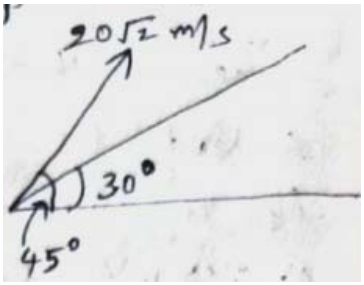
27. The height and width of each step of a staircase are 20cm and A ball rolls off the top of a stair with horizontal velocity V and hits the fifth step. The magnitude of V is [g= 10m/s] [ ]

a. 1.5 $\sqrt{5}$ m/s b. 3 $\sqrt{5}$ m/s c. 7.5 m/s d. 1.5 m/s

28. Find the time of flight and range of the projectile along the inclined plane as shown in figure [ ]

a. 1.69s, 39m c. 69s, 49m

b. 0.69s, 49m d. 2.99s, 29m



29. The relation between coefficient of static friction as a angle of friction is [ ]

a. $\phi = \cot^{-1}$ (m) c $\phi =. \cos^{-1}$ (m)

b. $\phi = \tan^{-1}$ (1/m) d. $\phi = \sin^{-1}\left(\frac{m}{\sqrt{1+m^2}}\right)$

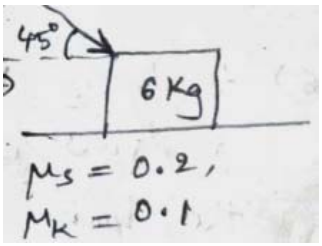
30. A vehicle of mass m is moving on a rough horizontal road with momentum P. if the coefficient of friction between the tyres and the road be m u. then the stopping distance is [ ]

a. $\frac{p}{2\mu mg}$ b. $\frac{p^2}{2\mu mg}$ c. $\frac{p^2}{2\mu m^2 g}$ d. $\frac{p}{2\mu m^2 g}$

31. In the figure shown find acceleration of block and force of friction F= 20$\sqrt{2}$ N[ ]

a. 1.2 m/s^2, 4N c. 2/3 m/s^2, 8N

b. 2m/s^2, 4N d. 1.5 m/s^2, 8N



32. A wooden box is placed on the floor of lorry moving with an acceleration of 6m/s^2. If u= 0.6. the acceleration of the box relative to lorry is (g= 9.8 m/s^2) [ ]

a. 1 m/s^2 b. 1.1 m/s^2 c. 1.2 m/s^2 d. 0

33. A block of weight 5N is pressed against a vertical wall with a horizontal force of 12N. if u= 0.6. the frictional force acting on the body is [ ]

a. 8N b. 5N c. 7.2N d. 10N

34. A brick of mass 2kg just begins to slide down an inclined plane at an angle of 45^0 with horizontal. The force of friction is [ ]

a. $19.6 \cos 45^0$ b. $9.8 \sin 45^0$ c. $19.6 \sin 45^0$ d. $9.78 \cos 45^0$

35. A block slides down a rough inclined plane of inclination 45^0. If coefficient of kinetic friction is 0.5 then acceleration of the sliding block is [ ]

a. $\frac{4.9}{\sqrt{2}} m/s^2$ b. $\frac{9.8}{\sqrt{2}} m/s^2$ c. $\frac{2.45}{\sqrt{2}} m/s^2$ d. 4.9 m/s^2

Chemistry

36. Measurable propertice 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° c is doubled at _____ °C temperature keeping pressure constant is [ ]

a. 273 K b. 2°C c. 243°C d. 546°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 cm^3 under a pressure of 9.962×10^4 NM^{-2} At the same temperature its volume at a pressure of $10.13X\ 10^4$ NM^{-2} is [ ]

a. 190 cm^3 b. 93.42 cm^3 c. 46.5 cm^3 d. 47.5 cm^3

40. Volume of 1 Litre of a gas is nearly equal to [ ]

a. 10 dm^3 b. 1 m^3 c. $10^3 m^3$ d. $10^3 cm^3$

41. Ideal gas obeys [ ]

a. Boyles Law b. Charte's Law c. Avagadro's Law d. All of the above

42. The density of a gas at STP is 2g lLt. Its molecular weight is [ ]

a. 22.4 b. 56 c. 44.8 d. 30

43. A five litre flask contains 35 gm of N_2 3g of H_2 and 8g of O_2 at 27°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 _____ 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 SO_2 to diffuses 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. Role of diffusion c. vapourdensity 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. $\frac{3}{2}$ RT b. $\frac{3}{2}$ nRT c. 2/3 RT d. $\frac{2}{3}$ nRT

49. The K.E of 4 moles of O_2 at 47°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