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

Class: 9-Nf1,NF2   **Marks: 100**
Sub: Maths, physics, chemistry   **Time: 2 ½ Hrs**

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

Maths

1. If $\cos 30^0 < A < 72^0$ and $1 \tan A = 2/5$ then $\tan A/2$ [   ]

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

2. If $\sin^6\theta + \cos^6\theta = 1 - k\sin^2 2\theta$ then K= ____   [   ]

    a. ¾   b. 1   c. 3/2   d. 2

3. If $A = \tan 6^0 \tan 42^0$, $B = \cot 66^0 \cot 78^0$ then _____   [   ]

    a. A=2B   b. A=B   c. 2A=B   d. 3A= 2B

4. $\dfrac{1}{\sin 10^0} - \dfrac{\sqrt{3}}{\cos 10^0} =$ [   ]

    a. 4   b. -4   c. -2   d. 2

5. If $\sin^2 A + \sin^2 B = \sin^2 C$ then $\angle C =$ [   ]

    a. 45^0 b. 60^0 c. 90^0 d. 30^0

6. If a+b+c=3a then cot B/2 +cot C/2=   [   ]

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

7. In ΔABC $\dfrac{\cos C + \cos A}{c+a} + \dfrac{cosB}{b} =$ [   ]

    a. 1/a   b. 1/b   c. 1/c   d. c+a/2

8. If $\angle C = 90^0$ then $2(r+R) =$ _____   [   ]

    a. a-b   b. a+b   c. 2(a+b)   d. 2(a-b)

9. In ΔABC, if 4r =3R then cosA+cosB +cosC =   [   ]

    a. ¼   b. ¾   c. 5/4   d. 7/4

10. In ΔABc, if r:R: $r_1 = 2:5:12$ then $\angle A =$ [   ]

    a. 36   b. 45^0 c. 60^0 d. 90^0

11. If $a\cos^2 C/2 + c\cos^2 A/2 = 3b/2$ then a, b,c in _____   [   ]

    a. A.G.P   b. H.P   c. G.P   d. A.P

12. $\dfrac{1 + \cos 56^0 + \cos 58^0 - \cos 66^0}{\cos 28^0 \cos 29^0 \sin 33^0} =$ _____   [   ]

    a. 0   b. 1   c. 2   d. 4

13. if $A = 320^0$ then $2\sin A/2 =$ [   ]

    a. $\sqrt{1+\sin A} + \sqrt{1-\sin A}$ c. $-\sqrt{1+\sin A} + \sqrt{1-\sin A}$

    b. $\sqrt{1+\sin A} - \sqrt{1-\sin A}$ d. $-\sqrt{1+\sin A} - \sqrt{1-\sin A}$

14. $\dfrac{\sin A + \sin 3A + \sin 5A + \sin 7A}{\cos A + \cos 3A + \cos 5A + \cos 7A} = \tan \Rightarrow x =$ [   ]

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

15. $\dfrac{1 + \sin \theta - \cos \theta}{1 + \sin \theta + \cos \theta} = $ _____   [   ]

    a. $\sin \dfrac{\theta}{2}$ b. $\cos \dfrac{\theta}{2}$ c. $\tan \dfrac{\theta}{2}$ d. $\cot \dfrac{\theta}{2}$

16. $\left(\dfrac{\cos A + \cos B}{\sin A - \sin B} \right)^{2019} + \left(\dfrac{\sin A + \sin B}{\cos A - \cos B} \right)^{2019} =$ [   ]

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

17. $\dfrac{2 \sin x}{\sin 3x} + \dfrac{\tan x}{\tan 3x} =$ [   ]

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

18. Area of $\triangle ABC$ is $a^2 - (b-c)^2$ then $\tan A/2 =$ _____   [   ]

    a. ¼   b. ½   c. ¾   d. 5/4

19. If $8R^2 = a^2 + b^2 + c^2$ then $\triangle ABC$ is _____   [   ]

    a. Right angled   b. isosceles   c. equilateral   d. scalene

20. $\tan 9^0 - \tan 27^0 - \tan 63^0 + \tan 81^0 =$ [   ]

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

Physics

21. A body mass 5 kg at rest is acted upon by a force. Its velocity changes to 5m/s. find its initial and final momentum   [   ]

    a. 40 kg m/s,0   b. 0,25kgm/s   c. 0,50kg m/s   d. 20 kg m/s,0

22. Two stones of masses m_1 and m_2 are left fall from heights 2h and h, their momentum on reaching the ground are in the ratio   [   ]

    a. 1:1   b. $\sqrt{m_1} : \sqrt{m_2}$ c. $2m_1 : m_2$ d. $\sqrt{2} \, m_1 : m_2$

23. A car of mass 1800 kg moving with a speed of 10m/s is brought to rest after a covering a distance of 50m. calculate the force acting on the car   [   ]

    a. 1800N   b. 900N   c. 3600N   d. 1600N

24. The force on a particle of mass 10g its $10\hat{i} + 5\hat{j}$ N. if it starts from rest what was its position at time t= 5 sec?   [   ]

    a. $\left(12500\hat{i} + 6250\hat{j} \right) m$ b. $-\left(1250\hat{i} + 625\hat{j} \right) m$

    b. $-\left(12500\hat{i} + 6250\hat{j} \right) m$ d. $\left(1250\hat{i} + 625\hat{j} \right) m$

25. A 6kg boll strikes a vertical wall with a velocity 34m/s and rebounds with a velocity 26m/s. the impulse is   [   ]

    a. 60NS   b. 180NS   c. 48Ns   d. 360Ns

26. Two blocks of masses m_1 and m_2 respectively are kept in contact on a friction less table. The experimenter pushes the block a from behind so that the blocks accelerate. If the block 'A' exerts a force 'F' on the block B what is the force exerted by the experimenter on A   [   ]

    a. $F\left(1+\dfrac{m_2}{m_1}\right)$ b. $F\left(1+\dfrac{m_1}{m_2}\right)$ c. $F\left(1-\dfrac{m_2}{m_1}\right)$ d. $F\left(2+\dfrac{m_2}{m_1}\right)$

27. When a toothpaste tube is squeezed its shape changes. The force responsible for this is an example of   [   ]

    a. Balanced forces   b. centripetal forces

    b. unbalanced forces   d. centrifugolfoces

28. The particles of mud fly off tangentially from the wheel of a moving vehicle. This is due to   [   ]

    a. Inertia of rest   b. inertia of motion   c. inertia of direction   d. both A &B

29. Action and reaction   [   ]

    a. Always exists in pairs   c. always action opposite direction

    b. Are equal in magnitude   d. all the above are true

30. The apparent weight of a freely fallking body is   [   ]

    a. Zero   b. increased   c. decreased   d. constant

31. A body of mass m falls from a height hi rises a height h_2. The magnitude of the change in momentum during the impart with the ground   [   ]

    a. $Mg(h_1+h_2)$ b. $m(\sqrt{2}\,gh_1+\sqrt{2}\,gh_2)$ c. $m\sqrt{2}\,gh_1-\sqrt{2}\,gh_2)$ d. zero

32. A constant force acts on a body of mass 10kg and produces in it an acceleration of 0.2 m/s^{-2}. Calculate the magnitude of force acting on the body   [   ]

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

33. A chain of lengh L and mass M is hang inf by fixing its upper end to a rigid support. Find the tension in the chain at a distance x from the rigid support.   [   ]

    a. $\left(1-\dfrac{x}{L}\right)Mg$ b. $\left(\dfrac{x}{L}\right)Mg$ c. $\left(1+\dfrac{x}{L}\right)Mg$ d. none ofthese

34. A uniform rope of length L resting on a smooth horizontal flooris pulled at one end of a force F. find the tension in the rope at a distance L/4from the end where the force applied   [   ]

    a. F   b. F/2   c. F/4   d. 3F/4

35. A block of mass 0.2 kg is suspended from the ceiling by a light strings. a second block of mass 0.3 kg suspended from the first block through another string. Find the tension in the two strings. Take r= 10m/s^2 [   ]

a. 5N & 3N   b. 2N & 3N   c. 3N & 4N   d. none of these

Chemistry

36.   The law of octaves was developed by   [   ]

        a. Newlands   b. Mendeleef   c. Lother mayer   d. Dobereiner

37.   Among s-block metals and transition metals which are more metallic   [   ]

        a. s- block metals   b. Transition metals   c. both are equally metallic   d. cannot be Predicted

38.   The highest oxidation state is shown by   [   ]

        a. Ru, Os   b. Fe, Os   c. W, Os   d. Re, Mo

39.   Atomic Radius depends upon   [   ]

        a. No. of bonds formed by the atom   b. Nature of bonding

        c. Oxidation state of the atom   d. All the above

40.   Pair of ions with similar ionic radii   [   ]

        a. Li^+, Mg^{+2} b. Li^+, Na^+ c. Mg^{+2}, Ca^{+2} d. Mg^{+2}, K^+

41.   The element with the highest electron affinity is   [   ]

        a. He   b. Li   c. Be   d. B

42.   Ionisation energy of Mg to Mg^{+2} is 22.67 e.v/atm. If the first Ionisation energy is 738kJ/Mol, the

        second Ionisation energy of Magnesium in (KJ/Mole)   [   ]

        a. 1448   b. 1702   c. 738   d. 1476

43.   If Ionisation energy of fluorine is 320 kJ/mole then the electron affinity of fluorine will be[   ]

        a. -320 k.J/mole   b. -160 k.J / mole   c. 320 k.J/mole   d. 160 k.J/mole

44.   The electronegativity values according to Mulliken scale are _____ times the values in Pauling

        scale

        a. 0.208   b. 2   c. 2.8   d. 544   [   ]

45.   The Ionisation energy and electron affinity of an element are 13.0 ev and 3.8 ev respectively its

        electronegativity is   [   ]

        a. 2.8   b. 3.0   c. 3.5   d. 4.0

46.   The most electropositive element is   [   ]

        a. I   b. Mg   c. Cs   d. Li

47.   Least acidic among the following is   [   ]

        a. SiO_2 b. Co_2 c. P_4O_{10} d. N_2O_5

48.   Aluminium is diagonally related to   [   ]

        a. Li   b. Be   c. C   d. B

49.   A metal forms a chloride with the formula MCl_2 Formula of Phosphoric acid is H_3PO_4. Formula of

        the phosphate of the metal is   [   ]

        a. M_3PO_4 b. MPo_4 c. $M_3(PO_4)_2$.   d. M_2PO_4

50. IP$_1$ value of chlorine is 12eV and electron affinity of chlorine is 3.6 eV number of chlorine atoms in the gaseous state that can be ionised by utilising the energy that is liberated in the Process $Cl_{(g)} + e^- \rightarrow Cl^-_{(g)}$ involving one mole of chlorine atoms is   [   ]

a. 1.3×10^{23} b. 3   c. 3×10^{23} d. 1.8×10^{22}