



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

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

12.2 (bc+cosA +ca cosB +ab cosC)= [ ]

a.  $a^2+b^2+c^2$       b.  $a^2+b^2-c^2$       c.  $a^2-b^2+c^2$       d.  $b^2+c^2-a^2$

13.  $\frac{b^2 - c^2}{a^2} =$  [ ]

a.  $\frac{\sin(B-C)}{\sin(B+C)}$       b.  $\frac{\cos(B-C)}{\cos(B+C)}$       c.  $\frac{\sin(B+C)}{\sin(B-C)}$       d.  $\frac{\cos(B+C)}{\cos(B-C)}$

14.  $\frac{a \cos A + b \cos B + c \cos c}{a + b + c} =$  [ ]

a. r/R      b. R/r      c. r+R      d. r-R

15.  $\frac{r_1(r_2 + r_3)}{\sqrt{r_1r_2 + r_2r_3 + r_1r_3}} =$  [ ]

a. A      b. b      c. c      d. 1

16.If A=60° B= 30° then a:b:c [ ]

a. 1:2:3      b. 1:2:  $\sqrt{3}$       c.  $\sqrt{3}$ :1:2      d.  $\sqrt{3}$ :2:1

17.bcos(C+θ)+c cos(B-θ)= [ ]

a. a cosθ      b. asinθ      c. a tanθ      d. a cotθ

18.if  $\sin\theta = \frac{a}{a+c}$ , then  $\frac{2\sqrt{bc}}{b+c} \cos \frac{A}{2} =$  [ ]

a. cosθ      b. sinθ      c. cotθ      d. tanθ

19.if a= 40, C= 40√3 . B= 30° then nature of triangle [ ]

a. right angled      b. isoseceler      c. equilateral      d. scalene

20.  $\sum \frac{a}{s-a} \left( \tan \frac{B}{2} - \tan \frac{C}{2} \right) =$  [ ]

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

## Physics

21.Find the magnitude of momentum of a body of mass 10kg moving with a velocity of 5 m/s [ ]

a. 40kg m/s      b. 30 kg m/s      c. 50 kg m/s      d. 60kg m/s

22.A body of mass 5kg started from a rest with an acceleration of 4m/s<sup>2</sup>. Its momentum after 5 sec is

a. 20kgm/s      b. 100 kgm/s      c. 4 kg m/s      d. 25 kg m/s

23.A body of mass ‘m’ falls from a height h<sub>1</sub>, from a height h<sub>2</sub>, the magnitude of the change in momentum during the impact with the ground. [ ]

a. Mg (h<sub>1</sub>+h<sub>2</sub>)      b. m (√2gh<sub>1</sub>+√2gh<sub>2</sub>)      c. m (√2gh<sub>1</sub>-√2gh<sub>2</sub>)      d. zero

24.A boy of mass 50kg standing on ground exerics a force of 500N on the ground the force exerted by the ground on the boy will be [ ]

- a. 50N                                      b. 25000N                                      c. 10N                                      d. 500N
25. A 6kg ball strikes a vertical wall with a velocity 34m/s and rebounds with a velocity of 26m/s. the impulse is [      ]
- a. 60Ns                                      b. 180Ns                                      c. 48Ns                                      d. 360Ns
26. A player caught a cricket ball of mass 150g moving at rest 20m/s. if catching process is completed in 0.1 sec. the force of the blow exerted by the ball on the hand of the player is equal to [      ]
- a. 30N                                      b. 300N                                      c. 150N                                      d. 3N
27. A body of mass 5kg 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, 25 kg m/s                                      c. 0,50 kg m/s                                      d. 20 kgm/s , 0
28. A constant force acts on a body of mass 10kg and produces in it an acceleration of  $0.2 \text{ m/s}^2$ . Calculate the magnitude of force acting on the body [      ]
- a. 1N                                      b. 2N                                      c. 3N                                      d. 4N
29. The acceleration produced by a force of 5N acting on a mass of 20kg in  $\text{m/s}^2$  is [      ]
- a. 4                                      b. 100                                      c. 0.25                                      d. 2.5
30. A force of 50N acts on a mass 10kg at rest what is acceleration what is its initial velocity after 5 sec, if the same force acts [      ]
- a.  $2\text{m/s}^2$ , 10m/s                                      b.  $4\text{m/s}^2$ , 5m/s                                      c.  $5\text{m/s}^2$ , 25m/s                                      d.  $6\text{m/s}^2$ , 1m/s
31. An open knife edge of mass M is dropped from a height h on a wooden floor. If the blade penetrates distance 'S' into the wood the average resistance offered by the wood to the blade is [      ]
- a. Mg                                      b.  $Mg(1-h/s)$                                       c.  $Mg(1+h/s)$                                       d. Mgh
32. A particle of mass 0.3 kg is subjected to a force  $F = -kx$  with  $K = \text{N/m}$ . what will be its initial acceleration if it is released from a point  $x = 20\text{cm}$ ? [      ]
- a.  $5\text{m/s}^2$                                       b.  $10 \text{ m/s}^2$                                       c.  $2.5 \text{ m/s}^2$                                       d.  $100 \text{ m/s}^2$
33. A constant force acts on a body of mass 500 gm at rest for 2 sec. if the body moves through 27m during the time impulse of the force is [      ]
- a. 1.35 kg m/s                                      b. 13.5 Ns                                      c. 1.35 Ns                                      d. 2.7 kg m/s
34. A constant retarding force of 20N acts on a body of mass 5kg moving initially with a speed of 10m/s. how long does the body take to stop? [      ]
- a. 1 sec                                      b. 1.5 sec                                      c. 2 sec                                      d. 2.5 sec
35. A 5 gm bullet acquires a speed of 120m/s in a gun with barrel length 2m. the average force exerted on the bullet is [      ]
- a. 3.6N                                      b. 18N                                      c. 36N                                      d. 72N

## Chemistry

36. First periodic table was drafted by [      ]



