1. *The SI unit of power is*
   A) Kg
   B) m/s^2
   C) $watt(w)$
   D) $Joule\ (J)$

2. *The work needed to push a 20 Kg block across a level floor for 10m by a force of 100 N is :*
   A) 100 J
   B) 1000 J
   C) 20000 J
   D) 2000 J

3. *Manometer is the instrument used to measure:*
   A) Temperutre.
   B) Force
   C) Mass
   D) Pressure

4. *A block of 2 Kg is pulled horizontally on a fractionless surface with a force of 4 N , the block acceleration is :*
   A) $4\ m/s^2$
   B) $2\ m/s^2$
   C) $1\ m/s^2$
   D) $6\ m/s^2$

شاهد الشرح من هنا

5. *When we shoot a gamma ray on lead, we find that gamma ray can pentrate the lead material by*
   - *A) Barely pentrate*
   - *B) Few millimeters*
   - *C) Several cemtimeters*
   - *D) None of these*

6. *The speed of an 40Kg bullet whose kinetic energy is 500J is*
   - *A) 10m/s*
   - *B) 20m/s*
   - *C) 30m/s*
   - *D) 5m/s*

7. *The force acting on two equal charges of 6μC separated by a distance of 0.03m is*

   $k = 9 \times 10^9 N.m^2/C^2$
   - *A) 360 N*
   - *B) 1080 N*
   - *C) 60 N*
   - *D) 0.3 N*

8. *The number of neutrons N in* $^{234}_{90}Th$ *nucleus is :*
   - *A) N=197*
   - *B) N=144*
   - *C) N=50*
   - *D) N=97*

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9. *Beta decay is a radioactivity deacay in which an atomic emits:*

A) $^{4}_{2}He$

B) γ

C) $photon$

D) e^{-}

10. *Matter is classified as being in one of three states: solid, liquid, or gas.*

- *True*
- *False*

11. *Converging lens forms real or virtual images depending on the position of the object*

- *True*
- *False*

12. *Energy is measured in the same units as work, the Joule.*

- *True*
- *False*

13. *The power of lens P, is the reciprocal of its focal length* $P = \frac{1}{f}$

- *True*
- *False.*

14. *The unit of work is Joule (J)*

- *True*
- *False*

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15. *No work is done if the object remains stationary while the force is applied*
- *True*
- *False.*

16. *Energy is the ability to do work*
- *True*
- *False*

17. *Virtual object are to the left of the lens and real images to the right*
- *True*
- *False*

18. *Real images are to the left of the lens and virtual objects to the right.*
- *True*
- *False*

19. *One of the characterized the ideal fluid is incompressible.*
- *True*
- *False*

20. *Angle of incidence = angle of reflection*
- *True*
- *False*

شاهدالشرح من هنا

21. *a particle moves along the x-axis according to expression* $x = 3 + t^2 - 3t^3$. *the instantaneous acceleration. at t=2 Seconds equals*

A) $-22m/s^2$
B) $-28m/s^2$
C) $-34m/s^2$
D) $-10m/s^2$

22. *the velocity of a car moving in straight. line increases froom 8m/s to 32m/s in 8seconds what is the average acceleration of the car during this period*

A) $4m/s^2$
B) $-0.5m/s^2$
C) $3m/s^2$
D) $-2m/s^2$

23. *at t=0 a particle moving. in xy plane with constant acceleration has velocity of* $v = 3\hat{\imath} - 2\hat{\jmath} m/s$ *but at t=2 s the particle's velocity is* $v = 11\hat{\imath} + 8\hat{\jmath}\ m/s$ *find the acceleration of the. particle*

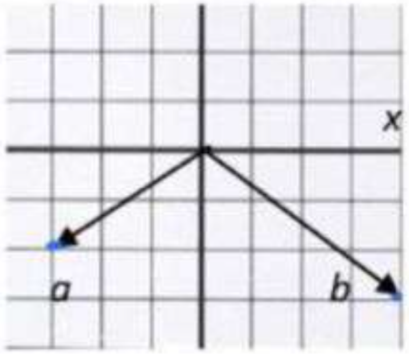
A) $2\hat{\imath} + 3\hat{\jmath}\ m/s^2$
B) $2\hat{\imath} - 3\hat{\jmath} m/s^2$
C) $4\hat{\imath} + 5\hat{\jmath} m/s^2$
D) $4\hat{\imath} - 7\ \hat{\jmath} m/s^2$

24. *if vector is multiplied by a positive number, its direction*

A) remains the same
B) reversed
C) gets half
D) gets double

شاهد الشرح من هنا

25. *in. the figure below if a and b are vectors, the dot product of the two vectors is*



A) 6
B) -6
C) 8
D) -8

26. *if a vector* $\vec{A} = 2\hat{\imath} + \hat{\jmath} + 2\hat{k}$, *and vector* $\vec{B} = 8\hat{\imath} + 2\hat{\jmath} - \hat{k}$
a) find A.B
b) find the angle between A and B

27. *according to newton's third law if we have action and reaction with equal magnitude of 10 N and opposite in direction, the resultant force for them :*
A) 20N
B) -20 N
C) 0
D) No resultant force can be found

28. *an object of mass 2Kg undergoes an acceleration by* $\vec{a} = 6\vec{\imath} + 4\,\vec{\jmath} m/s^2$
A) find the resultant force acting on the object
B) find the. magnitude of the resultant force
C) find the direction of the force

شاهد الشرح من هنا

29. A block of 3Kg is pulled horizontally on a frictionless surface with a force of 6 N from rest how far the block moves in 3S

30. As a force (5 N) acting on a mass of 10 kg object (horizontally), its velocity changes according to the expression: u(t)=(2t—1)m/s.
A) Find the work done on the object during the first 3s of motion
B) find the displacement of the object during the first 3s of motion

31. A particle has a mass of 0.6 Kg is moving from point A to point B under a constant force of l.2 N Knowing that at point A the particle has a speed of 2 m/s. After 3s, the particle had reached point B
a) What is the kinetic energy at A?
b) what is. the total work done on the particle as it moves from A to B
c) the power during this period

32. The sound waves which have frequency lie within sensitivity of human ear are called as
A) audible wave
B) infrasonic waves
C) ultrasonic waves
D) non of these

33. A wave is traveling at a certain speed if its frequency is doubled the wavelength is
A) not changed
B) doubled
C) reduced to. the half of initial value
D) increased four times

شاهد الشرح من هنا

34. *Give a sound level is 98 dB what is its intensity in w/m2*

35. *Three loud speakers are positioned at the same distance from a young man. the intensity of sound delivered by each loudspeaker at the location of the young man is* $5 \times 10^{-4} w/m^2$.
what is the sound level heard by the young man when only two loudspeakers are turned on

36. *On acold day in january, the temperature at a place fell below the freezing point and was recorded as -40 centigrade on the fahrenheit scale, the same temperature would be*
A) $32^o F$
B) $-8^o F$
C) $-72^o F$
D) $-40^o F$

37. *When applying the first law of thermodynamics to a system, when is heat a positive quantity*
A) when. the system has work done on it
B) when the system loses heat
C) when system does work
D) when the system absorbs heat
E) when no work is done either on the system or by the system

شاهدالشرح من هنا

38. *Convert* 25^oC *to kelvin scale*

A) $298K$
B) $273K$
C) 298^oC
D) 273^oC

39. *A themodynanic system undergoes aprocess in which its internal energy decreases by the amount of 600J if at the same time 320 J of work is done on the system. what is the energy transferred to or from it by heat ?*

40. *A 2800 J of work is needed to expand an ideal gas if the process is cyclic how much energy transfer by heat occurs between the gas and its surroundings in this process*

41. *The normal temperature of the chickadee is* 105.8^oF *what is that temperature in Celsius (°C)*

A) 58.8^oC
B) 41.0^oC
C) 73.8^oC
D) 37.8^oC

شاهد الشرح من هنا

42. *What is the intensity of a sound whose intensity level is 40 dB*

A) $I = 10^{-10}\ w/m^2$

B) $I = 10^{-11}\ w/m^2$

C) $I = 10^{-9}\ w/m^2$

D) $I = 10^{-8}\ w/m^2$

43. *What is intensity level in decibels of a sound wavve of intensity* $10^{-6} w/m^2$

A) 70dB

B) 50dB

C) 60dB

D) 80dB

44. *Which of these temperatures is likely a container of water at* $20°C$ *is mixed with water at* $28\ °C$ *?*

A) $30°C$

B) $22°C$

C) $More\ than\ 30°C$

D) $19°C$

45. *An amount of heat equal to 2500 J is added to a system, and 1800 J of work is done on the system. What is the change in the internal energy of the system*

A) 700J

B) 1800 J

C) 4300J

D) 2500J

46. *A gas is heated to do a work of* $1.0 \times 10^5 J$ *assume* $3.0 \times 10^5 J$ *of heat enters the system find the change in the internal energy*

شاهد الشرح من هنا

47. 4. A 2700 J of work is needed to expand an ideal gas. If the process is cyclic, how much energy transfer by heat occurs between the gas and its surroundings in this process?

48. 5. A thermodynamic system undergoes a process in which its internal energy decreases by the amount of 500 J If at the same time, 220 J of work is done on the system, what is the energy transferred to or from it by heat?

49. A converging lens with a focal length of 25 cm A bug is 8mm long and placed 15cm from the lens. What are the nature, size and location of the image?

A) Real, Inverted, small, and q=37 cm
B) Real, upright, magnified, and q= -37 cm
C) Virtual, inverted, the same size of the object, and q=37cm
D) Virtual, upright. magnified, and q=-37cm

50. The image formed by a lens is always virtual, upright, and smaller in size than an object kept at different positions in front of it. Therefore, the nature of the lens is

A) Diverging lens
B) Converging lens
C) Cylindrical lens
D) It's too hard to find that lens

شاهدالشرح من هنا

51. A 3.0 cm tall object is placed along the principal axis of a thin converging lens of 30.0 cm focal length. If the object distance is 40.0 cm, which of the following best describes the image distance and height, respectively ?

A) 17.3 cm and 7,0 cm
B) 120 cm and -9.0 cm
C) 17.3 cm and 1.3 cm
D) 120. cm and -1.0 cm

52. Which best describes the image for a thin convex lens that forms whenever the object Is at a distance less than one focal length front the lens?

A) Inverted, enlarged, and real
B) Inverted, diminished, and real
C) Upright, enlarged, and virtual
D) Upright, diminished, and virtual

53. A man throws balls with the same speed vertically upwards one after the other at an interval of 2 sec. What should be the speed of the throw so that more than two balls are in the air at any time?

A) Only with speed 19.6 m/s
B) More than 19.6 m/s
C) At least 9.8 m/s
D) Any speed less than 19.6 m/s.

54. A man throws balls with the same speed vertically upwards one after the other at an interval of 2 sec. What should be the speed of the throw so that more than two balls are in the air at any time?

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B) More than 19.6 m/s
C) At least 9.8 m/s
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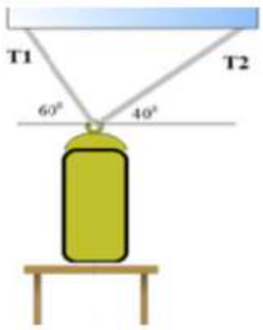
55. *A missile is launched into the air with an initial velocity =80m/s it is moving with a constant velocity until it reaches 1000 m. how high does the missile go ?*

A) 1000 m
B) 1326m
C) 1550m
D) Zero m

56. *Consider the displacement vectors* $\vec{A} = 2\hat{\imath} + 4\hat{\jmath}\ m$, *and* $\vec{B} = \hat{\imath} - 7\hat{\jmath}\ m$. *If A- B + 3 C = 0, what are the components of C ?*

A) $C_x = -0.33\ m$ *and* $C_y = -3.66\ m$
B) $C_x = -1\ m$ *and* $C_y = -1m$
C) $C_x = -1.33\ m$ *and* $C_y = -4.9\ m$
D) $C_x = -2.5\ m$ *and* $C_y = 2.18\ m$

57. *a block of mass (M) on a table in addition the mass was hanging as shown in the figure assuming that the tensions that affect the mass are* T_1 *and* T_2 *the normal force (N) is*



A) $N = F_g$
B) $N = F_g + T_1 \sin(60) - T_2 \sin(40)$
C) $N = F_g + T_1 \sin(60) + T_2 \sin(40)$
D) $N = F_g - T_1 \sin(60) - T_2 \sin(40)$

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