PHYSICS Part - I

CHAPTER 1

1, In high energy physics scientist study:
a, matter b, big particles
c, elementary d, ions

2, Wave theory of light was presented by:
a, Newton b, Maxwell
c, Compton d, Huygens

3, Natural Radioactivity was disobeyed by Decree in.
a, 1976. b, 1896.
c, 1996. d, 1916.

4, X – rays were discovered by,

a, J.J. Thomson.
b, Crooks.
c, Lorenz.
d, Roentgen.

5, The circumference of the earth was determined by,

a, Albernie.
b, Al – Khawririmi.
c, Omer Khayyam,
d, Ibn – al – Haitiam.

6, The pioneers of physics are

a, Greeks
b, Egyptians
c, Babylonians
d, Chinese

.

7, which one of the following is not a unit of length

a, Angstrom
b, Micron
c, Radian
d, Light year

8, Which one of the following is not regarded as a fundamental quantity in physics

a, Length
b, Mass
c, Time
d, Weight

9, Zero is significant only if it

a, Lies to the left of a significant digit
b, is between two digits
c, is to the right of a significant digit
d, is before the decimal point

10, A Second is defined as the duration of vibration of

a, Carbon atom
b, Cesium atom
c, Radium atom
d, Nitrogen atom

11, The dimension of the following pair is not the same

a, work & energy
b, work and torque
c, Momentum & impulse
d, Mass & moment of inertia

10, The decimal system was introduced by

a, Greeks
b, Egyptians
c, Chinese
d, Indians

11, The unit of Plank's constant is

a, Joule /sec
b, Joule x sec
c, Joule x m
d, Joule / m

12, The error in measurement may occur due to

a, inexperience of a person
b, The faulty apparatus
c, Inappropriate method
d, Due to all reasons in a, b and c

13, In any measurement the significant figures are

a, all accurately known and all doubtful digits
b, only accurately known digits
c, only doubtful digits
d, all accurately know digits and the first doubtful digit

14, A digit zero in a measurement

a, may be significant may not significant
b, always significant
c, always insignificant
d, significant only if left to a significant figure

15. Which one is the highest power multiple?

a, giga b, beta
c, mega d, deca

16, Unit of G is ?

a, $Nm^2 kg^2$ b, $N m^2 kg$
c, $N m^2 kg^{-2}$ d, none

17, The unit of force is _____ and its symbol is _____ which is the correct pair?

a, Newton, n b, Newton, N
c, newton, n d, newton, N

.18, Which one is the correct representation of the unit of pressure?

a Newton/Meter^2
b, newton/meter^2
c, Newton/meter^2
d, Newton/Meter^2

19, 1024 can be written in scientific notation as

a, 1.024×10^3 b, 2^{10}
c, 0.000976 d, 1/0300097

20. Number of significant figures in 0.0173 are

a, Three b, four
c, five d, two

21. The dimension of force is

a, MLT^{-1} b, MLT^{-2}
c, $ML^{-1}T$ d, $ML^{-1}T^2$

22. $ML^{-1}T^{-2}$ is the dimension of

a, force b, pressure
c, momentum d, energy

23. Which equation is not dimensionally correct?

(a) $E = mc^2$
(b) $Vf = Vi + at$
(c) $S = Vt^2$
(d) $S = 1/2at^2$

24. Three students measured length of a needle with meter rod and recorded as:

(i) 0.2145m (ii) 0.21m
(iii) 0.214m

25, Which one is correct record?

a, only (i) b, only (ii)
c, only (iii) d, both (i) and (ii)

26. Which one is the dimensionally correct equation?

a, $f = vt$
b, $S = Vit+1/2at^2$
c, $V = St$
d, $V= f/t$

27. A metal sphere of radius r is dropped into a tank of water. As it sinks at speed v, it experiences a drag force F given by $F = kr v$, where k is a constant. What are the SI base units of k?

a, kg m^2 s^{-1} b, kg $m^{-2}s^{-2}$
c, kg $m^{-1}s^{-1}$ d, kg m s^{-2}

28, Wave theory of light was presented by:

a Newton b, Maxwell
c, Compton d, Huygens

29, Einstein presented his famous theory of relativity in:

a, 1975 b, 1955
c, 1905 d, 1805

20, Muslims in the early ages translated science books into Arabic from which language?

a, English b, Spanish
c, French d, Greek

31, Al-Beruni determined

a, Area of the moon
b, Circumference of earth
c, Modern electronics
d, Radioactivity

32, The unit of Luminous Intensity is:

a, cadela b, candela
c, cdanela d, caladela

33, Which of the following us SI base unit?

a, gram b, slug
c, Newton d, Kilogram

34, Which one of the following shows only unit of length:

a, A^o , kg, gm b, M, m^3 , s
c, A^o km , m d, Gm, m2, deci-m

35, Meter is defined as the distance traveled by light in vacuum in:

a, 1 second
b, 299792458 second
c, 1/299792458 second
d, 165076373 second

36, The dimensions of stain are

a, $[MLT^2]$ b, $[ML^{-2}T]$
c, $[M^o L^o T^o]$ d, $[M^{-1}L^{-1}T^{-1}]$

37, Which of the following physical quantities is represented by dimensions $M^{-1} L^1 T^2$

a, gravitational constant G
b, coulombs constant
c, young,s modulus
d, plank,s constant

38, The dimension of angular velocity is:

a, A. $M^o L^o K^{-1}$ b, $ML^2 L^{-1} K$
c, $M^o L^o K^{-1}$ d, T^{-1}

39, One mile is equal to:

a, 1699m b, 1799 m
c, 1809 m d, 1609m

40, 1 mc^3=

a, 0.01 mc^3 b, 1000 mm^3
c, 0.001 m^3 d, 100 cm^3

ANSWER																			
1	**D**	**2**	**A**	**3**	**C**	**4**	**A**	**5**	**B**	**6**	**D**	**7**	**B**	**8**	**D**	**9**	**C**	**10**	**B**
11	**A**	**12**	**A**	**13**	**A**	**14**	**B**	**15**	**B**	**16**	**C**	**17**	**C**	**18**	**D**	**19**	**B**	**20**	**B**
21	**C**	**22**	**A**	**23**	**D**	**24**	**D**	**25**	**B**	**26**	**C**	**27**	**D**	**28**	**A**	**29**	**C**	**30**	**D**
31	**C**	**32**	**C**	**33**	**C**	**34**	**B**	**35**	**C**	**36**	**C**	**37**	**D**	**38**	**A**	**39**	**B**	**40**	**C**

CHAPTER 2A,B

(1) Rectangular coordinate system is also called.

(a) polar coordinate system
(b) Cartesian coordinate system
(c) Cylindrical coordinate system
(d) Space coordinate system

(2) The direction of a vector in space is specified by.

(a) one angle
(b) two angle
(c) three angle
(d) no angle

(3) Addition of vector obeys.

(a) commutative law
(b) distributive law
(c) associative law
(d) all given laws in a, b and c.

(4) A vector can be multiplied by number. The number may be.

(a) dimensionless
(b) dimensional scalar
(c) negative
(d) **all a, b and c are correct**.

(5) Unit vector $\hat{n}$ is along.

(a) x-axis
(b) normal on a surface
(c) y-axis
(d) z-axis

(6) $\cos\theta\hat{i} + \sin\theta\hat{j}$ is a.

(a) vector
(b) unit vector
(c) vector in the direction at angle with x-axis
(d) unit vector in the direction at angle θ with x-axis

(7) Maximum number of rectangular components are

(a) one
(b) two
(c) three
(d) infinite

(8) Maximum number of components of a vector may be.

(a) one
(b) two
(c) three
(d) infinite

(9) Which one is not correct for a vector $A = \sqrt{2}\,\hat{i} + \sqrt{2}\,\hat{j}$?

(a) has direction $\theta=45$ with x-axis
(b) has magnitude 2
(c) has magnitude 2 and direction $\theta=45$ with y-axis
(d) has magnitude -2

(10) The resultant of two forces of equal magnitudes is also equal to the magnitude of the forces. The angle between the two forces is.

(a) 30^o
(b) 60^o
(c) 90^o
(d) **120^o**

(11) What is the angle that the given vector makes with y-axis?
$\mathbf{A} = 2\hat{i} + \sqrt{}12\hat{j}$

(a) 20^o
(b) 60^o
(c) 90^o
(d) 120^o

(12) In which quadrant the two rectangular components of a vector have same sigh?

(a) 1st
(b) 2nd
(c) both 1st and 3rd
(d) 4th

(12) Two vectors A and B are making angle θ with each other. The scalar projection of vector B on vector A is written as.

(a) A.B/ A
(b) A.B/ B
(c) A. cos θ
(d) Both a and b are correct.

(14) Two vectors are $A = 3\hat{i}+2\hat{j}-\hat{k}$ & $B = 3\hat{i} - 2\hat{j} + \hat{k}$, then

(a) B is antiparallel to A
(b) **B is negative vector of A**
(c) B has negative magnitude
(d) B is perpendicular to A

(15) If A=B which of the following is not correct?

(a) $A.B = \hat{A}.\hat{B}$
(b) $|\mathbf{A}| = |\mathbf{B}|$
(c) $|\hat{A}| = |\hat{B}|$
(d) $A\hat{B} = B\hat{A}$

(16) $\hat{i} . (\hat{j} \times \hat{k})$ is equal to.

(a) 1
(b) $\hat{i}$
(c) $\hat{j}$
(d) $\hat{k}$

(17) Which one is not a correct relation?

(a) A x B = -BxA
(b) |AxB| = - |BxA|
(c) AxB = AB Sinθ$\hat{n}$
(d) BxA = AB Sinθ(-$\hat{n}$)

(18) The direction of vector product is given by.

(a) head to tail rule
(b) right hand rule
(c) left hand rule
(d) triangular rule

(19) If east, west, north, south, up and down are representing the direction of unit vectors, then east x south has direction along.

(a) west
(b) north
(c) down
(d) up

(20) Null vector is a vector which has.

(a) zero magnitude
(b) no specified direction
(c) both a and b are correct
(d) both a and b are not correct

(21) Which one is a unit vector?

(a) $\sqrt{3}\,\hat{i} + \sqrt{3}\,\hat{j} + \sqrt{3}\,\hat{k}$
(b) $1\sqrt{3}\,\hat{i} + 1/\sqrt{3}\,\hat{j} + 1\sqrt{3}\,\hat{k}$
(c) $\sqrt{3}/3\,\hat{i} + \sqrt{3}/3\,\hat{j} + \sqrt{3}/3\,\hat{k}$
(d) both b and c are correct

(22) Angle between two vectors A and B can be determined by.

(a) their dot product
(b) their cross product
(c) head to tail rule
(d) right hand rule

(23) The magnitude of cross product is equal to the dot product between the. The angle between the two vector is.

(a) 30^{o}
(b) 45^{o}
(c) 60^{o}
(d) 180^{o}

(24) Torque is defined as.

(a) turning effect of force
(b) cross product of force and position vector
(c) product of force and moment arm
(d) all a, b and c are correct

(25) The dimension of torque is.

(a) $[ML^2T^{-2}]$
(b) $[MLT^{-2}]$
(c) $[ML^2T]$
(d) $[ML^{-2}T^{-2}]$

(26) SI unit of torque is.

(a) N . m
(b) Joule
(c) Both a and b are correct
(d) Neither a nor be is correct

(27) Torque acting on a body determines.

(a) acceleration
(b) linear acceleration
(c) angular acceleration
(d) direction of motion of the body

(28) A body in equilibrium.

(a) always at rest
(b) always in uniform motion
(c) may be at rest or in uniform motion
(d) may be at rest or in motion\

(29) A body will be in complete equilibrium when it is satisfying.

(a) 1^{st} condition of equilibrium
(b) 2^{nd} condition of equilibrium
(c) both 1^{st} and 2^{nd} condition of equilibrium
(d) impossible

(30) Which one is not a type of dynamic equilibrium?

(a) rotational equilibrium
(b) translational equilibrium
(c) static equilibrium
(d) both a and c are correct answer

(31) Three coplanar force acting on a body keep it in equilibrium. They should therefore be.

(a) concurrent
(b) non concurrent
(c) parallel
(d) non parallel

(32) Which of the following pairs does not have identical dimensions?

(a) torque and energy
(b) momentum and impulse
(c) energy and work
(d) mass and moment f inertia

(33) A central force.

(a) can produce torque
(b) can't produce torque
(c) some time can produce torque some time can't
(d) it has no relation with torque

(34) It is easier to turn a steering wheel with both hands than with a single hand because.

(a) acceleration force increases on the wheel
(b) two forces act on the wheel
(c) two hands provide firm grip
(d) couple acts on the wheel

(35) The cross product $\hat{i} \times \hat{j}$ is equal to.

(a) zero
(b) one
(c) $-\hat{k}$
(d) $\hat{k}$

(36) The unit vector in the direction of vector $\vec{A} = 2\hat{i} - 2\hat{j} + \hat{k}$ is.

(a) $2\hat{i} - 2\hat{j} + \hat{k}$
(b) $(2\hat{i} - 2\hat{j} + \hat{k}) / 9$
(c) $(2\hat{i} - 2\hat{j} + \hat{k}) / 3$
(d) $(2\hat{i} - 2\hat{j} + \hat{k}) / 5$

(37) The magnitude of $\hat{i} . (\hat{j} \times \hat{k})$ is.

(a) 0
(b) 1
(c) -1
(d) $\hat{i}$

(38) In which quadrant, only value of 'tan' will be positive?
(a) first
(b) second
(c) third
(d) both 1st and 3rd

(39) If $\vec{A} = A_x \hat{i} + A_y \hat{j} + A_z \hat{k}$, $\vec{B} = B_x \hat{i} + \mathbf{B_y \hat{j} + B_z \hat{K}}$ **then.**

(a) $\vec{A} . \vec{B} = A_x B_x + A_y B_y + A_z B$
(b) $\vec{A} . \vec{B} = A_x B_y + A_y B_z + A_z B_y$
(c) $\vec{A} . \vec{B} = A_y B_z + A_z B_y + A_z B_x$
(d) $\vec{A} . \vec{B} = A_x B_z + A_y B_y + A_z B_x$

(40) The cross product of two vectors is a negative vector when.
(a) they are parallel vectors
(b) they are anti parallel vectors
(c) they are perpendicular vector
(d) they are rotated through 270^o

ANSWER																			
1	B	2	C	3	D	4	D	5	B	6	D	7	C	8	D	9	D	10	D
11	B	12	C	13	A	14	B	15	A	16	A	17	B	18	B	19	C	20	C
21	D	22	A	23	B	24	D	25	A	26	A	27	C	28	C	29	C	30	C
31	A	32	D	33	B	34	D	35	D	36	C	37	B	38	D	39	A	40	D

CHAPTER 3A,B

(1) When body is in motion its _____ always changes.

(a) Velocity
(b) Acceleration
(c) Position vector
(d) Momentum

(2) A body is moving with uniform velocity. Its,

(a) speed changes
(b) acceleration changes
(c) direction of motion changes
(d) displacement from origin changes

(3) A man is in a car is moving with velocity of 36Km/hr. his speed with respect to the car is.

(a) 10m/s
(b) 36m/s
(c) zero
(d) infinite

(4) When velocity time graph is a straight line parallel to time axis then.

(a) acceleration is const
(b) acceleration is variable
(c) acceleration is zero
(d) velocity is zero

(5) Area under velocity time graph represent.

(a) force
(b) momentum
(c) distance
(d) acceleration

(6) Slope of velocity time graph is.

(a) acceleration
(b) distance
(c) force
(d) momentum

(7) Instantaneous and average velocities become equal when body.

(a) has zero acceleration
(b) has uniform acceleration
(c) has variable acceleration
(d) moves in a circle

(8) Which law of motion is also called law of inertia?

(a) 1st law
(b) 2nd law
(c) 3rd law
(d) 4th law

(8) Inertia of an object is quantitative measure of its.

(a) Volume
(b) Density
(c) Mass
(d) Temperature

(9) Newton's laws do not hold good for particles.

(a) at rest
(b) moving slowly
(c) high velocity
(d) move with velocity comparable to velocity of light

(10) 1^{st} law of motion gives the definition of.

(a) rest
(b) motion
(c) velocity
(d) force

(11) 2^{nd} law of motion gives the definition of.

(a) force
(b) acceleration
(c) velocity
(d) both force and acceleration

(12) 3^{rd} law of motion explains.

(a) effect of force
(b) existence of a force
(c) existence of two forces
(d) existences of pair of forces in nature

(13) Momentum depends upon.

(a) fore act on the body
(b) mass of the body
(c) velocity of the body
(d) both mass and velocity of the body

(14) The dimension of force is.

(a) $\mathbf{MLT^{-2}}$
(b) ML^2T^{-2}
(c) ML^2T^2
(d) $ML^{-2}T^{-2}$

(15) Which of the following pair has same direction always?

(a) force, displacement
(b) force, velocity
(c) force, acceleration
(d) force, momentum

(16) Motorcycle safety helmet extend the time of collision hence decreasing the.

(a) chance of collision
(b) force acting

(c) velocity
(d) impulse

(17) The collision between two bodies be elastic if bodies are.

(a) solid and soft
(b) soft and elastic
(c) solid and hard
(d) hard and elastic

(18) During long jump, athlete runs before taking the jump. By doing so he.

(a) provide him a larger inertia
(b) decrease his inertia
(c) decrease his momentum
(d) increase his momentum

(19) When car takes turn around a curve road, the passengers feel a force acting on them in a direction away from the center of the curve. It is due to.

(a) centripetal force
(b) gravitational force
(c) their inertia
(d) centrifugal force

(20) A body is falling freely under gravity. How much distance it falls during an interval of time between 1^{st} and 2^{nd} seconds of its motion, taking g = 10?

(a) 14 m
(b) 20 m
(c) 5 m
(d) 25 m

(21) What is the shape of velocity time graph for constant acceleration?

(a) straight line
(b) parabola
(c) inclined curve
(d) declined curve

(22) When collision between the bodies in a system is inelastic in nature then for system.

(a) momentum changes but K.E remain conserve
(b) K.E changes but momentum remain conserve
(c) Both momentum and K.E changes
(d) Both momentum and K.E remain conserve

(23) Which shows the correct relation between time of flight T and maximum height H?

(a) $H = gT^2 / 8$
(b) $H = 8T^2 / g$
(c) $H = 8g/T^2$
(d) $H = 8/gT^2$

(24) The acceleration in the rocket all any instant is proportional to the nth power of the velocity of the expelled gases. Where the value of n must be ?

(a) -1
(b) 1

(c) -2
(d) 2

(25) Taking off rocket can be explained by.

(a) 1^{st} law of motion
(b) 2^{nd} law of motion
(c) law of conservation of momentum
(d) law of conservation of energy

(26) Which of the following is not an example of projectile motion.

(a) A gas filled balloon
(b) Bullet fired from gun
(c) A football kicked
(d) A base ball shot

(27) What is the angle of projection for which the range and maximum height become equal?

(a) Tan^{-1} 1/4
(b) Tan^{-1} 4
(c) Tan^{-1} 1/2
(d) Tan^{-1} 2

(28) The thrust on the rocket in the absence of gravitational force of attraction is.

(a) Constant
(b) Not constant
(c) Constant if the rate of ejected gases is constant
(d) Constant for short range rocket

(29) When two bodies move toward each other with constant speeds the distance between them deceases at the rate of 6m/sec. if they move in the same direction the distance between them increases at the rate of 4m/sec. Then their speeds are.

(a) 5m/s, 1m/s
(b) 3m/s, 3m/s
(c) 6m/s, 1m/s
(d) 4m/s, 2m/s

(30) Distance covered by a freely falling body in 2 seconds will be.

(a) 4.9 m
(b) 19.6m
(c) 39.2m
(d) 44.1m

(31) The distance covered by a body in time 't' starting from rest is.

(a) $at^2/2$
(b) Vt
(c) $a^2t/2$
(d) at^2

(32) Flight of a rocket in the space is an example of.

(a) Second law of motion.
(b) Third law of motion
(c) First law of motion
(d) Law of gravitation

(33) The trajectory (or path) of a projectile is.

(a) Straight line
(b) Parabola
(c) Hyperbola
(d) Circle

(34) The limit of the average velocity over a path length that approaches zero but always includes the point 'A' is defined as

(a) speed at 'A'
(b) instantaneous velocity at 'A'
(c) acceleration at 'A'
(d) average speed at 'A'.

(35) Uniform acceleration results in a velocity which:

(a) remains constant
(b) varies linearly with time
(b) zero
(d) none of these.

(36) Average velocity, $\vec{V}_{av} = \frac{\vec{x}_2 - \vec{x}_1}{t_2 - t_1}$ depends on

(a) the path between the positions $\vec{x}_2$ and $\vec{x}_1$ ..
(b) the average speed and the average direction of the journey
(c) positions $\vec{x}_2$ and $\vec{x}_1$ and the average speed.
(d) average direction of the journey

(37). The speed of a particle at the end of four successive seconds is 20, 25, 30, 35 km/hr. The acceleration of the particle is

(a) 5 km/sec (b) 5 km/hr^2
(c) 5 km/hr (d) 5 km/sec^2

(38) A rock is dropped from a high bridge. After 3 seconds of free fall the speed of the rock is:

(a) 30 m/sec (b)29.4 km/sec^2
(c) 2940 cm/sec (d) 30 m/sec

(39) A bomb is dropped from an aeroplane moving horizontally with a speed of 200 mph. If the air resistance is negligible, the bomb will reach the ground in 5 sec when the altitude is:

(a) 4 miles (b) 122.5 m
(c) 40 m (d) 10 m

(40) A particle accelerates uniformly from 10 km/hr to 20 km/hr with acceleration of 2 km./hr^2. The total time it takes is:

(a) 20 hr (b) 10 hr
(c) 10 min (d) 5 hr.

(41) A football player will throw a football at maximum distance if the angle of projection is:

(a) 30^0 (b) 45^0
(c) 60^0 (d) 90^0

(42) The horizontal range of a projectile, at a certain place, is completely determined by

(a) the angle of projection
(b) the initial velocity of projection
(c) the mass of the projectile
(d) speed and mass of the projectile

(43) Range of a projectile on a horizontal plane is same for the following pair of angles:

(a) 30^0 and 60^0 (b) 20^0 and 80^0
(c) 0^0 and 45^0 (d) 10^0 and 90^0

(44) A cricket ball is hit at 45^o to the horizontal with K.E. of E. The K.E. at the highest point is:

(a) zero (b) E/2
(c) $E/\sqrt{2}$ (d) E

(45) A man wanting to shoot at a fixed target should aim

(a) directly at the target
(b) slightly higher
(c) slightly lower
(d) slightly sideways

(46) A projectile is fired horizontally off a 490 m high cliff with a muzzle velocity of 80 m/sec. The time taken by the projectile to reach the ground is

(a) 2.5 sec (b) 7.5 sec
(c) 5.0 sec (d) 10 sec

(47) **A projectile is fired horizontally off a 490 m high cliff with a muzzle velocity of 80 m/sec. How far from the bottom of the cliff will the projectile land ?**

(a) 200 m (b) 400 m
(c) 800 m (d) 1600 m

(48) A missile is fired with a speed of 98 m/sec at 30^o with the horizontal. The missile is airborne for

(a) 10 sec (b) 20 sec
(c) 30 sec (d) 40 sec

(49) A missile is fired with 98 m/sec at 30^o with the horizontal. It reaches a maximum height of

(a) 196 m (b) 98 m
(c) 122.5 m (d) 2940 m

(50) **The range of a projectile is 8000 m and its summit is 3000 m high. How far is the summit from the point of projection?.**

(a) 3000 m (b) 8000 m
(c) 5000 m (d) 11000 m

ANSWER																			
1	C	2	D	3	C	4	C	5	C	6	A	7	A	8	A	9	C	10	D
11	D	12	B	13	D	14	D	15	A	16	A	17	C	18	B	19	C	20	A
21	C	22	A	23	A	24	B	25	A	26	B	27	C	28	A	29	B	30	A
31	A	32	B	33	A	34	B	35	B	36	C	37	A	38	C	39	B	40	D
41	B	42	B	43	A	44	B	45	B	46	D	47	C	48	A	49	C	50	C

CHAPTER 4

(1) Work done will be maximum if the angle between the force F and displacement d is.

(a) 45^{o}
(b) 90^{o}
(c) 180^{o}
(d) 0^{o}

(2) A field in which the work done in a moving a body along closed path is zero is called.

(a) electric field
(b) conservative field
(c) electromagnetic field
(d) maximum

(3) When a force is parallel to the direction of motion of the boyd, then work done on the body is.

(a) zero
(b) minimum
(c) infinity
(d) maximum

(4) Which of the following types of force can do no work on the particle on which it acts?

(a) frictional force
(b) gravitational force
(c) elastic force
(d) centripetal force

(5) If a body a mass of 3 kg is raised vertically through 2m, then the work done will be.

(a) 38. 2 J
(b) 392.1 J
(c) 39.2J
(d) 3.92J

(6) An elevator weighing 3.5×10^{-6} N is raised to a height of 1000 m in the absence of friction, the work done.

(a) 3.5×10^{3} J
(b) 3.5×10^{4} J
(c) 3.5×10^{6} J
(d) 3.5×10^{9} J

(7) The average power and instantaneous power become equal if work is done at.

(a) any rate
(b) at variable rate
(c) at uniform rate
(d) at high rate

(8) The relation between horse power and watt is.

(a) 1 hp = 546 watts
(b) 1 hp = 746 watts
(c) 1 hp = 1000 watts
(d) 1 hp = 946 watts

(9) Proton, electron, neutron and α particles have same momentum. Which of them have highest K.E?

(a) proton
(b) electron
(c) neutron
(d) α-particle

(10) Slope of work time graph is equal to.

(a) displacement
(b) acceleration
(c) power
(d) energy

(11) Work done by variable force is determine by dividing.

(a) force into small interval
(b) displacement into small interval
(c) both force and displacement into small intervals
(d) force into small and displacement into large intervals

(12) Work done on the body equals to the.

(a) change in its K.E always
(b) change in its P.E always
(c) change in it K.E and change in its P.E
(d) neither change in K.E nor change in its P.E

(13) The escape velocity of a body in gravitational field of earth is independent of.

(a) its mass
(b) the angle at which its is thrown
(c) both its mass and the angle at which it is thrown
(d) gravitational field of earth

(14) The tides raise the mater in the see roughly in a day.

(a) once
(b) twice
(c) four time
(d) eight time

(15) The source of geothermal energy is.

(a) decay of radioactive element in the earth
(b) compression of material in the earth
(c) residual lost of the earth
(d) all as said in a, b and c

(16) The highest value of escape velocity in solar system is for planet .

(a) Earth
(b) Neptune
(c) Jupiter
(d) Moon

(17) Work done by the force of friction is.

(a) always positive
(b) always negative

(c) positive only for small frictional force
(d) positive only for large frictional force

(18) P.E of a body has.

(a) no formula
(b) a formula mgh only
(c) a formula
(d) no general formula

(19) If velocity is double, then.

(a) momentum increase 4 times and K.E increases 2 times
(b) momentum and K.E remain same
(c) momentum increases 2 times and K.E increase constant
(d) momentum increases 2 times and K.E increases 4 times

(20) When the speed of a moving body is doubled, then.

(a) its K.E is doubled
(b) its acceleration is doubled
(c) its P.E is doubled
(d) its momentum is doubled

(21) One mega watt hour is equal to.

(a) $36x\ 10^6$ J
(b) $36x\ 10^{12}$ J
(c) $36x\ 10^9$ J
(d) $36x\ 10^8$ J

(22) Which of the following is not conservative force.

(a) Friction
(b) electric
(c) gravitational
(d) magnetic

(23) Work has the dimension as that of same as that of.

(a) torque
(b) angular momentum
(c) linear momentum
(d) power

(24) The consumption of energy by a 60 watt bulb in 2 sec is.

(a) 120 J
(b) 60 J
(c) 30 J
(d) 0.02 J

(25) The relation between the escape velocity V_{esc} and orbital speed V_o is given by.

(a) $V_{esc} = 1/2V_o$
(b) $V_{esc} = \sqrt{2}\ V_o$
(c) $V_{esc} = V_o$
(d) $V_{esc} = 2V_o$

(26) The escape velocity form the earth surface in km s^{-1} is.

(a) 4.2 km s^{-1}
(b) 7.5 km s^{-1}
(c) 9.5 km s^{-1}
(d) 11 km s^{-1}

(27) If moon radius is 1600 km and g on its surface is 1.6 ms^{-2}, then the escape velocity on the moon is.

(a) 1600 ms^{-1}
(b) 50.6 ms^{-1}
(c) 71.6 ms^{-1}
(d) 2263 ms^{-1}

(28) When two protons are brought together.

(a) Kinetic energy increases
(b) P.E between them increases
(c) P.E between them decreases
(d) P.E between them do not change

(29) When arrow is released from its bow, its energy is transformed from.

(a) heat energy to K.E
(b) elastic P.E to K.E
(c) chemical energy to elastic P.E
(d) K.E to elastic P.E

(30) A man lifts, vertically, a weight of 40 kg through 1m in 10s: while a child lifts, vertically, a weight of 10 kg through a distance of 1m in 1s. What will be correct inference?

(a) man does more than child
(b) child does more work than man
(c) both do the same amount of work
(d) it is a foolish question.

(31) A man carries a 1 kg suitcase 10 m horizontally across the corridor and then goes up the stairs of total height 10 m. The work done by the man is

(a) 0 J (b) 4.9 J
(c) 196 J (d) 98 J

(32) **A 100 kg car starting from rest runs down a 30^o slope. If the total length of the slope is 20 m, the speed of the car at the bottom, ignoring friction, is**

(a) $14000\sqrt{3}$ m/sec (b) 1.4 m/sec
(c) 20 sin 30^o m/sec (d) 14 m/sec

(33) A 2m tall man standing at the top of a 30 m tall tower raises a 1 kg mass 0.5 m above his head. The potential energy of the raised mass may be considered to be

(a) 4.9 J (b) 24.5 J
(c) 316.5 J (d) all of the above

(34) A body is falling freely under gravity from point A to point B. The energy of the body at the point C is

(a) is less than its energy at A
(b) is equal to its energy at A
(b) is grater than its energy at A
(d) none of these

(35) **When two protons are brought closer together, the P. E. between them**

(a) remains constant (b) increases
(c) decreases (d) approaches zero

(36) If a car is moving at a constant speed of 25 m/sec and the total frictional forces acting on it amounts to 1000 N, then the engine power of the car is

(a) 250 joule sec^{-1} (b) 2500 watt
(c) 25 k watt (d) 500 k watt

(37) If you weigh 500 N and in 5 seconds you can run up a flight of stairs consisting of 40 steps, each 15 cm high, what is your power?

(a) 3000 J (b) 3000 J sec^{-1}
(c) 600 watt (d) 60 kilowatt

(38) **One horsepower equals**

(a) 273 W (b) 746 W
(c) 500 W (d) 1 kilowatt

(39) The horse-power required to pump up 2500 kg of water up 100 m in 5 minutes is:

(a) 10.9 hp (b) 25 hp
(c) 15 hp (d) 5 hp

(40) **Water falls over a fall of 30 m at a rate of 45 310^6 kg/min. The power generated is:**

(a) 200 MW (b) 210 MW
(c) 220 MW (d) 230 MW

ANSWER																			
1	**D**	**2**	**B**	**3**	**D**	**4**	**D**	**5**	**C**	**6**	**D**	**7**	**C**	**8**	**B**	**9**	**B**	**10**	**C**
11	**B**	**12**	**C**	**13**	**C**	**14**	**B**	**15**	**D**	**16**	**C**	**17**	**B**	**18**	**D**	**19**	**D**	**20**	**D**
21	**D**	**22**	**A**	**23**	**A**	**24**	**A**	**25**	**B**	**26**	**D**	**27**	**B**	**28**	**B**	**29**	**B**	**30**	**B**
31	**D**	**32**	**D**	**33**	**D**	**34**	**B**	**35**	**B**	**36**	**C**	**37**	**C**	**38**	**B**	**39**	**A**	**40**	**C**

CHAPTER 5

(1) The rotational K.E of hoop is equal to the.

(a) its translational K.E
(b) half than its translational K.E
(c) double than its translational K.E
(d) four times than its translational K.E

(2) A hoop and disc have same mass and radius. Their rotational K.E are related by an equation.

(a) $K.E_{hoop} = K.E_{disc}$
(b) $K.E_{hoop} = 2K.E_{disc}$
(c) $K.E_{hoop} = 1/2K.E_{disc}$
(d) $K.E_{hoop} = 4K.E_{disc}$

(3) The critical speed of an artificial satellite is.

(a) 6 Kms^{-1}
(b) 8.1 Kms^{-1}
(c) 7.9 Kms^{-1}
(d) 8 ms^{-1}

(4) Geo-stationary satellite completes one rotation around earth in.

(a) 3 hours
(b) 6 hours
(c) 12 hours
(d) 12 hours

(5) Radius of geo-stationary orbit form center of earth is nearly.

(a) 42000 km
(b) 36000 km
(c) 24000 km
(d) 18000 km

(6) According to Einstein, the gravity interaction is possible between.

(a) material objects only
(b) material objects and electromagnetic radiation only
(c) electromagnetic radiations.
(d) none of the above.

(7) One radian is equal to.

(a) 67.3^o
(b) 57.3^o
(c) 87.3^o
(d) 60^o

(8) The period of a circular motion is given by.

(a) $T = rV$
(b) $T = \omega w$
(c) $T = 2\pi\omega$
(d) $T = 2\pi/\omega$

(9) The direction of linear velocity of body moving in a circle is.

(a) along the axis of rotation
(b) along the tangent
(c) directed towards the center
(d) directed away from the center

(10) When a body moves in a circle, the angle between its linear velocity and angular velocity is always.

(a) 180^o
(b) 0^o
(c) 90^o
(d) 45^o

(11) The circumference subtends an angle.

(a) π radian
(b) 2π radian
(c) $\pi/2$ radian
(d) 4π radian

(12) The relation between linear and angular acceleration is.

(a) $\vec{\alpha} = \vec{a} \times \vec{r}$
(b) $\vec{a} = \vec{r} \times \vec{\alpha}$
(c) $\vec{a} = \vec{\alpha} \times \vec{r}$
(d) $\vec{r} = \vec{\alpha} \times \vec{a}$

(13) When a body is whirled in a horizontal circle by means of a string the centripetal force is supplied by.

(a) mass of a body
(b) velocity of body
(c) tension in the string
(d) centripetal the string

(14) Centripetal force performs .

(a) maximum work
(b) minimum work
(c) negative work
(d) no work

(15) When a body moves in a circle of radius 'r' with linear speed 'V', its centripetal force is.

(a) mV / r^2
(b) mV / r
(c) mV^2 / r
(d) mV^2 / r^2

(16) A stone is whirled in a vertical circle at the end of a string. When the stone is at the highest position the tension is the string is.

(a) maximum
(b) zero
(c) equal to the weight of the stone
(d) less than the weight of the stone

(17) The span of broad jump depends upon.

(a) mass of the jumper
(b) height of jump
(c) angle of projection
(d) none

(18) In case planets the necessary acceleration is provided by.

(a) Gravitational force
(b) Frictional force
(c) Coulomb force
(d) Centripetal force

(19) If a car moves with a uniform speed of 2 ms^{-2} in a circle of radius 0.4. its angular speed is.

(a) 4 rad. s^{-1}
(b) 5 rad s^{-1}
(c) 1.6 rad s^{-1}
(d) 2.8 rad s^{-1}

(20) A body can have constant velocity when it follows a.

(a) elliptical path
(b) circular path
(c) parabolic path
(d) rectilinear path

(21) A body moving along the circumference of a circle completes two revolutions. If the radius of the circular path is R, the ratio of displacement to the covered path will be.\

(a) π R
(b) 2π R
(c) zero
(d) 4π R.

(22) The angular speed for daily rotation of earth in rad s^{-1} is.

(a) 2π
(b) π
(c) 4π
(d) 7.3×10^{-5} rad^{-1}

(23) When a wheel, 1 m in diameter makes 30 rev min, the linear speed of point on its rim in ms^{-1} is.

(a) 2π
(b) $\pi/2$
(c) π
(d) 20π

(24) A cyclist cycling around a circular racing track, skids because

(a) the centripetal force upon him is less than limiting friction
(b) the centripetal force upon him is greater than limiting friction
(c) the centripetal force upon him is equal to the limiting friction
(d) the friction between the tyres of the cycle and road vanishes

(25) If a wheel of radius r turns through an angle of 30^o, then the distance through which any point on its rim moves is.

(a) $\pi/3$ x r
(b) $\pi/6$ x r
(c) $\pi/30$ x r
(d) $\pi/180$ x r

(26) In angular motion, Newton's second law of motion is.

(a) $F = ma$
(b) $F = \Delta p/\Delta t$
(c) $\iota = la$
(d) all of above

(27) Angular speed of second's hand of a watch in rad^{-1} is.

(a) π
(b) $\pi/2$
(c) $\pi/30$
(d) $\pi/180$

(28) The shaft of a motor rotates at a constant angular speed of 360rev/min.
Angle turned through in 1 sec in radian is.

(a) π
(b) 3π
(c) 6π
(d) 12π

(29) What is outward force acting on a mass of 10 kg when rotating at one end of an inelastic string 10m long at speed of 1m/s?

(a) 1N
(b) 10N
(c) 2N
(d) 100N

(30) If we whirl a stone at the end of a string in the vertical circle, it is likely to break when the stone is .

(a) at the highest point
(b) at the lowest point
(c) at any point during motion
(d) at the point where gravity is not acting

(31) A body moving along the circumference of a circle completes two revolutions. If the radius of the circular path is R, the ratio of displacement to the covered path will be _____.

(a) $\sqrt{R}$
(b) $2\sqrt{R}$
(c) zero
(d) $4\sqrt{R}$

(32) A man of weight W is standing on an elevator which is ascending with an acceleration a. The apparent weight of the man is.

(a) mg
(b) mg – ma
(c) mg + ma
(d) mg – ma

(33) Which one of the following planets is closer to the sun?

(a) Pluto
(b) Venus
(c) Mercury
(d) Mars

(34) The planet nearest to the earth is.

(a) Venus
(b) Mars
(c) Uranus
(d) Sun

(35) A satellite moving round the earth constitutes.

(a) An inertial frame of reference
(b) Non inertial frame
(c) Neither inertial nor non inertial
(d) Both inertial and non inertial

(36) Minimum number of communication satellites required to cover the whole earth is

(a) 4
(b) 3
(c) 2
(d) 5

(37) A body of 2 kg is suspended from the ceiling of an elevator moving up with an acceleration g. its apparent weight in the elevator will be

(a) 9.8 N
(b) 19.6 N
(c) 129.4 N
(d) 39.2 N

(38) If a body of mass 10 kg is allowed to fall freely, its weight becomes.

(a) zero
(b) 98N
(c) 9.8N
(d) 10N

(39) How many days would be in a year if the distance between the earth and the sun were reduced to half of its present value (assuming circular orbit)?

(a) 365 days
(b) 730 days
(c) 329 days
(d) 129 days

(40) When a body is moving along a circular, path, it covers a certain angle in a given internal of time. Such type of motion is.

(a) vibratory motion
(b) linear motion
(c) rotatory motion
(d) angular motion

ANSWER																			
1	A	2	B	3	C	4	D	5	A	6	B	7	B	8	D	9	B	10	C
11	B	12	C	13	C	14	D	15	C	16	C	17	C	18	A	19	B	20	D
21	C	22	D	23	B	24	B	25	B	26	C	27	C	28	D	29	A	30	B
31	C	32	C	33	D	34	A	35	B	36	B	37	D	38	A	39	D	40	D

CHAPTER 6

(1) Coefficient of viscosity of honey is greater than.

(a) milk
(b) water
(c) tarcoal
(d) water

(2) The dimensions of coefficient of viscosity are.
(a) $ML^{-1}T^{-1}$
(b) $M^2L^1T^1$
(c) ML^1T^{-1}
(d) $M^2L^{-1}T^{-1}$

(3) Terminal velocity is.
(a) uniform
(b) maximum
(c) uniform and maximum
(d) neither uniform nor maximum

(4) When body moves with terminal velocity the acceleration in the body become.
(a) zero
(b) maximum
(c) variable
(d) infinite

(5) Terminal velocity is given by equation.
(a) $V_t = gr^2\rho/\eta$
(b) $V_t = gr^2\rho/9\eta$
(c) $V_t = gr^2\rho/9\eta$
(d) $V_t = 9gr^2\rho/2\eta$

(6) Terminal velocity of the body is directly proportional to the.
(a) radius of the body
(a) diameter of the body
(b) size of the body
(c) square of the diameter of the body

(7) The flow of ideal fluid is always.
(a) turbulent
(b) streamline
(c) irregular
(d) straight line

(8) Drag force is given by.
(a) Newton's law
(b) Pascal's law
(c) Gauss's law
(d) Stoke's law

(9) When fluid is incompressible then.
(a) velocity of the fluid is constant
(b) flow of the fluid is constant
(c) density of the fluid is constant
(d) volume of the fluid is constant

(10) Irregular flow of fluid is called.
(a) streamline
(b) turbulent
(c) uniform
(d) laminar

(11) According to equation of continuity, $A_1V_1 = A_2V_2 = \text{constant}$.
The constant is equal to.
(a) flow rate
(b) volume of fluid
(c) mass of fluid
(d) density of fluid

(12) Equation of continuity is obtained by apply in law of conservation of.
(e) mass
(f) energy
(g) momentum
(h) all

(13) Velocity of fluid increases where the pressure is.
(a) low
(b) high
(c) constant
(d) changes continuously

(14) Speed of efflux can be determined by applying.
(a) Bernoull's theorem
(b) Torricelli's theorem
(c) Venture relation
(d) All

(15) Blood vessels are.
(a) rigid
(b) not rigid
(c) of glass
(d) of rubber

(16) Concentration of red cells in blood is about.
(a) 25%
(b) 40%
(c) 50%
(d) 75%

(17) A man standing near a fast moving train may fall.
(a) on the train
(b) away from the train
(c) towards the train
(d) on himself

(18) For which position, maximum blood pressure in the body have the smallest value ?
(a) standing straight
(b) sitting on chair
(c) sitting on ground
(d) lying horizontally

(19) Two fog droplets have radius 2:3, their terminal velocities are .
(a) 4:6
(b) 4:9
(c) 2:9
(d) 4:3

(20) Burnoulli's equation is obtained by applying law of conservation of .
(a) mass
(b) energy
(c) momentum
(d) fluid

(21) Venturi meter is used to measure.
(a) fluid pressure
(b) fluid density
(c) fluid speed
(d) none

(22) In cricket when a bowler produce reverse swing, the ball will move towards.
(a) Shinning side of the ball
(b) Rough side
(c) Seam of the ball
(d) Goes straight

(23) Stokes law is applicable if body has _____ shape.
(a) rough
(b) square
(c) circular
(d) spherical

(24) One torr is equal to.
(a) 1.333 Nm^{-2}
(b) .1333 Nm^{-2}
(c) 13.33 Nm^{-2}
(d) 133.3 Nm^{-2}

(25) Systolic pressure is called.
(a) low blood pressure
(b) high blood pressure
(c) normal blood pressure
(d) abnormal blood pressure

(26) Instrument used to measure blood pressure is called.
(a) Venturimeter
(b) Blood pressure
(c) Sphygmomanometer
(d) Sonometer

(27) A chimney work best if air exposed to the chimney is,
(a) Stationary
(b) Moving
(c) Moving slowly
(d) Moving fast

(28) Which one is venture relation?
(a) $P_1 - P_2 = 1 / 2\ \rho V_2^2$
(b) $V_2 = 2g\ (h_1-h_2)$
(c) $P + 1 / 2\rho V_2 + \rho gh = \text{Constant}$
(d) $A_1V_1 = A_2V_2 = \text{Constant}$

(29) The effect of the decrease in pressure with the increase of the speed of fluid in a horizontal pipe is known as.
(a) Bernoulli's effect
(b) Torricelli's effect
(c) Venture effect
(d) Stokes effect

(30) Ideal fluid is.
(a) non-viscous
(b) incompressible
(c) steady flow
(d) possess all properties

(31) When weight of an object falling freely becomes equal to the drag force, then the body will move with
(a) increasing speed
(b) decreasing speed
(c) constant speed
(d) none of them

(32) The body will move with terminal velocity when it acquires
(a) minimum speed
(b) zero speed
(c) maximum speed
(d) none of them

(33) When the body reaches its terminal velocity, the acceleration of the body becomes
(a) maximum speed
(b) minimum speed
(c) zero
(d) constant quantity

(34) A water hose with an internal diameter of 20 mm at the outlet discharges 30 kg of water in 60 s. what is water speed at the outlet if density of water is 1000 Kg/m3 during its steady flow.
(a) 1.3 m/s (b) 1.6m/s
(c) 1.9 m/s (d) 2.2 m/s

(35) The direction of the streamlines is the same as the direction of the
(a) force (b) torque
(c) velocity (d) weight

(36) When the different streamlines cannot cross each other, then this condition is known as
(a) continuity condition
(b) turbulent flow condition
(c) steady flow condition
(d) none of them

(37) When each particle of the fluid moves along a smooth path, this path is known as
(a) straight path
(b) smooth path
(c) haphazard path
(d) streamline

(38) During the steady flow, different streamlines
(a) cannot across each other
(b) can across each other
(c) either of them
(d) neither of them

(39) If every particle of the flow that passes a particular point, moves along the same path as followed by particles which passed the point earlier, then this flow is said to be
(a) turbulent (b) streamline
(d) abrupt (d) none of them

(40) When a fluid is in motion, its flow can be considered as
(a) turbulent
(b) streamline
(c) either of them
(d) neither of them

ANSWER																			
1	**D**	**2**	**A**	**3**	**C**	**4**	**A**	**5**	**B**	**6**	**D**	**7**	**B**	**8**	**D**	**9**	**C**	**10**	**B**
11	**A**	**12**	**A**	**13**	**A**	**14**	**B**	**15**	**B**	**16**	**C**	**17**	**C**	**18**	**D**	**19**	**B**	**20**	**B**
21	**C**	**22**	**A**	**23**	**D**	**24**	**D**	**25**	**B**	**26**	**C**	**27**	**D**	**28**	**A**	**29**	**C**	**30**	**D**
31	**C**	**32**	**C**	**33**	**C**	**34**	**B**	**35**	**C**	**36**	**C**	**37**	**D**	**38**	**A**	**39**	**B**	**40**	**C**

CHAPTER 7

(1) The time required to complete one vibration is called
(a) time period (b) frequency
(c) time period (d) velocity

(2) The force which opposes the applied force producing the displacement in the spring is called
(a) restorign force (b) periodic force
(c) centripetal force (d) resistive force

(3) The number of vibrations completed by a body in one second is called
(a) time period (b) frequency
(c) total vibrations (d) displacement

(4) The distance of vibrating body at any instant from its equilibrium position is called
(a) displacement (b) frequency
(c) amplitude (d) time period

(5) For a body executing S.H.M, its
(a) momentum remains constant
(b) potential energy remains constant
(c) kinetic energy remains constant
(d) total energy remains constant

(6) Which of the following does not exhibit S.H.M?
(a) a plucked violin string
(b) a mass attached to a spring
(c) a train shunting between two terminals
(d) a simple pendulum

(7) If the displacement of a body executing S.H.M is plotted against time, then the curve is known
(a) frequency of S.H.M
(b) period of S.H.M
(c) wave form
(d) none of them

(8) The wave from of S.H.M will be
(a) square wave (b) sine wave
(c) rectified wave (d) saw tooth wave

(9) An object undergoes S.H.M has maximum speed when its displacement from the mean position is
(a) maximum speed
(b) zero
(c) half of the maximum value
(d) one third of the maximum value

(10) An object undergoes S.H.M has maximum acceleration when its displacement form the mean position is

(a) maximum
(b) zero
(c) half of the maximum value
(d) one third of the maximum value

(11) In vibratory motion.
(a) P.E remains constant
(b) K.E remain constant
(c) Total energy remain constant
(d) Total momentum remain constant

(12) The waveform of S.H.M is.
(a) standing wave
(b) sine wave
(c) square wave
(d) none

(13) S.I unit of frequency is.
(a) vibration s^{-2}
(b) radian
(c) hetz
(d) ms^{-1}

(15) In S.H.M the velocity of a particle is maximum at
(a) mean position
(b) extreme position
(c) Middle between mean and extreme position on the right side.
(d) Middle between mean and extreme position on the left side.

(16) The acceleration of a projection on the diameter for a particle moving along a circle is.
(a) w^2x
(b) wx^2
(c) $-w^2x$
(d) $-wx^2$

(17) Total energy of a body executing S.H.M, is directly proportional to.
(a) square root of amplitude
(b) the amplitude
(c) reciprocal of amplitude
(d) square of amplitude

(18) The time period of a second pendulum is-
(a) 4 seconds
(b) 3 seconds
(c) 2 seconds
(d) 6 seconds

(19) The length of second pendulum is.
(a) 100 cm
(b) 99 cm
(c) 99.2 cm
(d) 98 cm

(20) If length of second pendulum becomes four times, then its time period will become.
(a) four time
(b) six times
(c) eight time
(d) two times

(21) The force responsible for the vibratory motion of the simple pendulum.
(a) $mg \cos\theta$
(b) $mg \sin\theta$
(c) $mg \tan\theta$
(d) mg

(22) The frequency of the second pendulum is.
(a) 1 hertz
(b) 0.5 hertz
(c) 1.5 hertz
(d) 2.5 hertz

(23) Simple harmonic motion is a type of .
(a) Rotational motion
(b) Circular motion
(c) Musical arrangement
(d) Vibratory motion

(24) The SI unit of force constant is identical with that of.
(a) Force
(b) Pressure
(c) Surface tension
(d) Loudness

(25) When the amplitude of a wave become double, its energy become.
(a) Double
(b) Four times
(c) One half
(d) None time

(26) A simple pendulum suspended form the ceiling of a lift has time period T, when the lift is at rest. When the lift falls freely, the time period is.
(a) Infinite
(b) T/g
(c) Zero
(d) g/T

(27) The energy of S.H.M is maximum at.
(a) Mean position
(b) Extreme position
(c) In between mean position
(d) All positions during SHM

(28) The product of frequency and time period is equal to.
(a) 1
(b) 2
(c) 3
(d) 4

(29) **The displacement of SHM is written as $X = X_o \sin\omega t$, If** displacement is written by $X = X_o \cos\omega t$ then phase constant will be equal to.
(a) 0^o
(b) 45^o
(c) 90^o
(d) 180^o

(30) For what displacement the P.E becomes ¼ of its maximum value?
(a) $x = x_o$
(b) $x = x_o/2$
(c) $x = x_o/4$
(d) $x = x_o^2/2$

(31) Sharpness of resonance is.
(a) directly proportional to damping force
(b) inversely proportional to damping force
(c) equal to square of damping force
(d) equal to square of damping force

(32) Which one does not work according to resonance?
(a) T.V
(b) Radio
(c) Microwave oven
(d) Bulb

(33) The restoring force acting on simple pendulum is given by.
(a) mg sin θ
(b) –mg sin θ
(c) ms cos θ
(d) –mg cos θ

(34) Phase of SHM describes.
(a) Displacement only
(b) Direction of motion only
(c) Both displacement and direction of motion
(d) Neither displacement nor direction of motion

(35) Natural frequency of simple pendulum depends upon.
(a) Its mass
(b) Its length
(c) Square of its length
(d) Square root of its length

(36) Electrical resonance is observed in.
(a) Radio
(b) Microwave oven
(c) Both in radio and microwave oven
(d) Neither in radio nor in microwave oven

(37) Total distance traveled by bob of simple pendulum in one vibration is equal to.
(a) Amplitude
(b) Square of amplitude
(c) 2 x amplitude
(d) 4 x amplitude

(38) When K.E energy of SHM is maximum, its.
(a) P.E is zero
(b) Acceleration is zero
(c) Restoring force is zero
(d) All P.E acceleration & restoring force are zero

(39) In damped harmonic oscillation, which one deceases?
(a) Amplitude of vibration
(b) Energy of vibration
(c) Both amplitude and energy
(d) Neither amplitude nor energy

(40) Forced vibration are known as
(a) Simple harmonic vibration
(b) Natural vibration
(c) Driven harmonic vibration
(d) Free vibration

ANSWER																			
1	**C**	**2**	**A**	**3**	**B**	**4**	**B**	**5**	**D**	**6**	**C**	**7**	**C**	**8**	**B**	**9**	**B**	**10**	**A**
11	**C**	**12**	**B**	**13**	**C**	**14**	**A**	**15**	**C**	**16**	**D**	**17**	**C**	**18**	**C**	**19**	**D**	**20**	**B**
21	**B**	**22**	**D**	**23**	**C**	**24**	**B**	**25**	**A**	**26**	**D**	**27**	**A**	**28**	**B**	**29**	**C**	**30**	**B**
31	**B**	**32**	**D**	**33**	**B**	**34**	**C**	**35**	**D**	**36**	**A**	**37**	**D**	**38**	**D**	**39**	**C**	**40**	**C**

CHAPTER 8

(1) Waves transmit _____ from one place to another.
(a) energy
(b) mass
(c) both
(d) none

(2) The waves that require a material medium for their propagation are called .
(a) Matter waves
(b) Electromagnetic waves
(c) Carrier waves
(d) Mechanical waves

(3) The distance between any two consecutive crests or troughs is called.
(a) Frequency
(b) Period
(c) Wave length
(d) Phase difference\

(4) When two identical traveling waves are superimposed, the velocity of the resultant wave.
(a) Decreases
(b) Increases
(c) Remains unchanged
(d) Becomes zero

(5) In vibrating cord the points where the amplitude is maximum, are called.
(a) antinodes
(b) nodes
(c) troughs
(d) crests

(6) The distance between two consecutive nodes is.
(a) λ/2
(b) λ/4
(c) λ
(d) 2 λ

(7) The distance between consecutive node and antinode is.
(a) λ
(b) λ/2
(c) 2λ
(d) λ/4

(8) If stretching force is T of wire increases, then its frequency
(a) Deceases
(b) Increases
(c) Remains the same
(d) Any of above

(9) A stationary wave is set up in the air column of a closed pipe. At the closes end of the pipe
(a) Always an node is formed
(b) Always an antinode is formed
(c) Neither node nor antinode is formed
(d) Sometimes a node and sometimes an antinode is formed

(10) It is possible to distinguish between transverse and longitudinal waves form the property of
(a) Refraction
(b) Polarization
(c) Interference
(d) Diffraction

(11) according to Laplace correction sound travel in air under the conditions of
(a) adiabatic
(b) isothermal
(c) isobaric
(d) isochoric

(12) Sound waves do not travel in vacuum because
(a) They are transverse waves
(b) They are stationary waves
(c) They require material medium for propagation
(d) They do not have enough energy

(13) Velocity of sound is vacuum is
(a) 332 ms^{-1}
(b) 320 ms^{-1}
(c) zero
(d) 224 ms^{-1}

(14) Increase in velocity of sound in the air for 1^oC rise in temperature is
(a) 1.61 ms^{-1}
(b) 61.0 ms^{-1}
(c) 0.61 ms^{-1}
(d) 2.00 ms^{-1}

(15) The velocity of sound is greatest in
(a) Water
(b) Air
(c) Copper
(d) Ammonia

(16) On loading the prong of a tuning form with wax, its frequency
(a) Increase
(b) Decrease
(c) Remains unchanged
(d) May increase or decrease

(17) The velocity of sound in air would become double its velocity at 0^oC at temperature
(a) 313 ^oC
(b) 586 ^oC
(c) 819 ^oC
(d) 1172 ^oC

(18) The normal ear is the most sensitive in the frequency range
(a) 20,000 to 30,000 hertz
(b) 10 to 20 hertz
(c) 2000 to 4000 hertz
(d) 6000 to 8000 hertz

(19) Ultrasonics have
(a) Frequency in the audible range
(b) Frequency is greater than 20 kHz
(c) Frequency lower than 20 Hz
(d) All of above

(20) The periodic alternation of sound between maximum and minimum loudness are called
(a) Silence zone
(b) Interference
(c) Beats
(d) Resonance

(21) The number of beats produced per second is equal to
(a) The sum of the frequencies of two tuning forks
(b) The difference of the frequencies of two tuning forks.
(c) The ratio of the frequencies of two tuning forks
(d) The frequency of either of the two tuning forks

(22) Beats are the results of
(a) Diffraction of sound waves
(b) Constructive and destructive interference
(c) Polarization
(d) Destructive interference

(23) Silence zone takes place due to
(a) Constructive interference
(b) Destructive interference
(c) Beats
(d) Resonance

(24) Doppler effect applies to
(a) Sound wave only
(b) Light wave only
(c) Both sound and light wave
(d) Neither sound nor light wave

(25) When the source of sound moves away form a stationary listener, then _____occurs.
(a) an apparent increase in frequency
(b) an apparent decrease in frequency
(c) an apparent decrease in wavelength
(d) an apparent change in frequency

(26) A simple pendulum has a bob of mass 'm' and its frequency is 'f'. If we replaced the bob with a heavier one, say of '2m', then what will be its new frequency?

(a) 1/4f
(b) 1/2f
(c) f
(d) 2f

(27) Which one is the correct relation for fundamental frequency of open and closed pipe?
(a) $f_{open} = 2 f_{closed}$
(b) $f_{closed} = 2f_{open}$
(c) $f_{open} = f_{closed}$
(d) $f_{open} = 1 / f_{closed}$

(28) In open organ pipe
(a) Only even harmonics are present
(b) Only odd harmonic are present
(c) Both even and odd harmonics are present
(d) Selected harmonics are present

(29) Which one is the correct relation?
(a) $V_{Newton} = V_{Laplace}$
(b) $V_{Newton} = \gamma V_{Laplace}$
(c) $V_{Newton} = \sqrt{\gamma}\, V_{Laplace}$
(d) $V_{Laplace} = \sqrt{\gamma}\, V_{Newton}$

(30) The dimension of elastic modulus ε is
(a) $ML^{-1}T^{-2}$
(b) $ML^{-2}T^{-2}$
(c) MLT^{-2}
(d) $ML^{2}T^{-2}$

(31) The wave speed of a wave in terms of its wavelength λ and period is:
(a) $v = \lambda T$ (b) $v = \lambda T^2$
(c) $v = \lambda / T$ (d) $v = T/\lambda$

(32) In a transverse wave the distance between a crest and a trough is equal to:
(a) $\lambda/2$ (b) $\lambda/4$
(c) λ (d) 2λ

(33) In a longitudinal wave the distance between adjacent condensations is equal to:
(a) $\lambda/2$ (b) $\lambda/4$
(c) λ (d) 2λ

(34) When a transverse wave is reflected on going from a denser to a rarer medium, then at the boundary the reflected wave undergoes a phase change of:
(a) 0^o (b) 90^o
(c) -90^o (d) 180^o

(35) When a wave is reflected on going from a rarer to a denser medium, then at the boundary the reflected wave will undergo a phase change of:
(a) 0^o (b) 90^o
(c) -90^o (d) 180^o

(36) A wave has a wavelength of 1 cm and a period of 2 sec. Its wave speed is:
(a) 0.5 m/sec (b) 5 cm/sec
(c) 2.50 cm/sec (d) 0.5 cm/sec

(37) If the distance between a compression and an adjacent rarefaction is 2 cm and the wave speed of the wave is 4 cm/sec, then its wavelength is
(a) 2 cm (b) 4 cm
(c) 8 cm (d) ½ cm

(38) The intensity of a wave is the transfer of
a) energy per unit area normal to direction of wave propagation
(b) power per unit area normal to direction of wave propagation
(c) amplitude normal to direction of the wave propagation
(d) power per unit area parallel to direction of wave propagation

(39) Two wave trains of the same amplitude and frequency travelling in opposite directions along the same path in the same medium produce:
(a) resonance (b) beats
(c) standing waves (d) musical notes

(40) The speed of the transverse waves travelling in a stretched string of mass m, length l and under tension T is given by the equation

(a) $v = \sqrt{\frac{l\ T}{m}}$ (b) $v = \sqrt{\frac{m\ T}{l}}$

(c) $v = \sqrt{\frac{T}{m\,l}}$ (d) $v = \frac{1}{2\pi}\sqrt{\frac{l}{mT}}$

ANSWER																			
1	**A**	**2**	**D**	**3**	**C**	**4**	**C**	**5**	**A**	**6**	**A**	**7**	**D**	**8**	**B**	**9**	**A**	**10**	**B**
11	**C**	**12**	**C**	**13**	**C**	**14**	**C**	**15**	**C**	**16**	**B**	**17**	**C**	**18**	**C**	**19**	**B**	**20**	**C**
21	**B**	**22**	**B**	**23**	**B**	**24**	**C**	**25**	**B**	**26**	**C**	**27**	**A**	**28**	**C**	**29**	**C**	**30**	**A**
31	**C**	**32**	**A**	**33**	**C**	**34**	**A**	**35**	**D**	**36**	**D**	**37**	**B**	**38**	**B**	**39**	**C**	**40**	**A**

CHAPTER 9

(1) Optical active crystals rotates the
- (a) Vibrating plane
- (b) polarization plane
- (c) diffraction plane
- (d) interference plane

(2) Which is not optically active?
- (a) sugar
- (b) tartaric acid
- (c) water
- (d) sodium chlorate

(3) I double slit experiment, we observe
- (a) Interference fringes only
- (b) Diffraction fringes only
- (c) Both interference and diffraction fringes
- (d) Polarized fringes

(4) When light incident normally on thin film, the path difference depends upon
- (a) Thickness of the film only
- (b) Nature of the film only
- (c) Angle of incidence only
- (d) All thickness, nature and angle of incidence

(5) Which one of the following properties of light does not change with the nature of the medium?
- (a) Velocity
- (b) Wavelength
- (c) Amplitude
- (d) Frequency

(6) Light reached the earth from sun in nearly
- (a) 15 minutes
- (b) 10 minutes
- (c) 8 minutes
- (d) 8 minutes 30 seconds

(7) Photoelectric effect was given by
(a) Hertz
(b) Fresnel
(c) Einstein
(d) Plank

(8) According to Einstein, light travels from one place to another in the form of
(a) waves
(b) particles
(c) photons
(d) it was not his discovery

(9) Longitudinal waves do not exhibit
(a) Reflection
(b) Refraction
(c) Diffraction
(d) Polarization

(10) Central spot of Newton's rings
(a) Bright
(b) Dark for large wavelength
(c) Dark
(d) Bright for large wavelength

(11) A point source of light placed in a homogeneous medium gives rise to
(a) A cylindrical wave front
(b) An elliptical wave front
(c) A spherical wave front
(d) A plane wave front

(12) the locus of all points in a medium having the same phase of vibration is called
(a) crest
(b) trough
(c) wavelength
(d) wave front

(13) Which one of the following is nearly monochromatic light?
(a) Light form fluorescent tube
(b) Light form sodium lamp
(c) Light form neon lamp
(d) Light form simple lamp

(14) Two sources of light are coherent if they emit rays of
(a) Same wavelength
(b) Same amplitude of vibration
(c) Sam wave length with constant phase difference
(d) Same amplitude and wavelength

(15) When crest of one wave falls over the trough of the other wave, this phenomenon is known as
(a) Polarization
(b) Constructive interference
(c) Destructive interference
(d) Diffraction

(16) In Young's double slit experiment, the fringe spacing is equal to
(a) $d\lambda D$
(b) $2\lambda d/D$
(c) $\lambda D/d$
(d) $\lambda d/D$

(17) In Young double slit experiment, if white light is used
(a) Alternate dark and bright fringes will be seen
(b) Coloured fringes will be seen
(c) No interference fringes will be seen
(d) Impossible to predict

(18) The Velocity of light was determined accurately by
(a) Newton
(b) Michelson
(c) Huygen
(d) Young

(19) The condition for constructive interference of two coherent beams is that the path difference should be
(a) Integral multiple of $\lambda/2$
(b) Integral multiple of λ
(c) Odd Integral multiple of $\lambda/2$
(d) Even integral multiple of λ

(20) In an interference pattern
(a) Bright fringes are wider than dark fringes
(b) Dark fringes are wider than bright fringe
(c) Both dark and bright fringes are of equal width
(d) Central fringes are brighter than the outer fringes

(21) The appearance of Colour in thin films is due to
(a) Diffraction
(b) Dispersion
(c) Interference
(d) Polarization

(22) The blue to the sky is due to
(a) Diffraction
(b) Reflection
(c) Polarization
(d) Scattering

(23) A light ray traveling form rarer to denser medium suffers a phase change of
(a) 60^o
(b) 90^o
(c) 180^o
(d) 45^o

(24) When one mirror of a Michelson Interferometer is moved a distance of 0.5 mm, we observe 2000 fringes. What will be wavelength of light used ?
(a) 5000 nm
(b) 5000 A^o
(c) 500 m
(d) 2000 μm

(25) Diffraction effect is
(a) More for a round edge
(b) Less for a round edge
(c) More for a sharp edge
(d) Less for a sharp edge

(26) The wavelength of X-rays is of the order of
(a) $10A^o$
(b) $1000A^o$
(c) $1A^o$
(d) $100A^o$

(27) Wavelength of X-rays falling at glancing angle of 30^o on a crystal with atomic spacing $2x10^{-10}$ for the first order diffraction is
(a) $4x10^{-10}$ m
(b) $2x10^{-10}$ m
(c) 0.02×10^{-10}m
(d) $20x10^{-10}$m

(28) A diffraction grating has 500 lines per mm. its slit spacing or grating element will be equal to
(a) 500 mm
(b) $5x10^{-3}$mm
(c) $2x10^{-5}$mm
(d) $2x10^{-3}$mm

(29) In a plane polarized light,
(a) Vibration in all direction
(b) Vibration in two mutually perpendicular directions
(c) Vibration take place in a direction perpendicular to the direction of propagation of light.
(d) No vibration at all.

(30) Light on passing through a Polarized is
(a) Plane polarized
(b) Un-polarized
(c) Circularly polarized
(d) Elliptically polarized

(31) Which one of the following cannot be polarized?
(a) Radio waves
(b) Ultraviolet rays
(c) X-rays
(d) Sound waves

(32) Diffraction fringes are
(a) Equally spaced
(b) Distance between them increases
(c) Distance between then decreases
(d) They are adjacent with no space in between

(33) In monochromatic red light, a blue book will probably appear to be
(a) Black
(b) Purple
(c) Green
(d) No scientific reasoning available

(34) A thing that emits its own light is
(a) Luminous
(b) Non-luminous
(c) Incandescent
(d) Bright

(35) In double slit experiment, if one of the two slit is covered then
(a) No interference fringes are observed
(b) No diffraction fringes are observed
(c) No fringes observed
(d) Interference pattern not distributed

. **(36) In Young's double slit experiment, if d is the separation between the slits, destructive interference will occur if**
(a) d sin θ = m λ : (m = 0, 61, 6 2, . . .)
(b) d sin θ = (m + ½) λ : (m = 0, 61, 6 2, . . .)
(c) 2d sin θ = m /λ : (m = 0, 61, 6 2, . . .)
(d) 2 d sin θ = m λ : (m = 0, 61, 6 2, . . .)

(37) In Young's double slit experiment, if d is the separation between the slits, λ is the wave- length of the light used and D is the distance of the screen from the slits, then the position of the mth bright fringe from the central position is given by
(a) $y_m = m \lambda D/d$ (b) $y_m = (m + ½) \lambda D/d$
(c) $y_m = m \lambda d/D$ (d) $y_m = (m+ ½) \lambda d/D$

(38) In Young's double slit experiment, if d is the slits separation, λ is the wave length of the light used and D is the distance of the screen from the slits, then the separation between two successive bright fringes or dark fringes is given by
(a) $\frac{\lambda D}{d}$ (b) $\frac{\lambda d}{D}$
(c) $\frac{D}{\lambda d}$ (d) $\frac{d}{D \lambda}$

(39) In monochromatic red light a blue book will appear
(a) red (b) blue
(c) purple (d) black

(40) Which of the following properties is not found in both sound and light waves
(a) interference (b) diffraction
(c) polarisation (d) dispersion

ANSWER																			
1	**B**	**2**	**C**	**3**	**C**	**4**	**D**	**5**	**D**	**6**	**D**	**7**	**C**	**8**	**C**	**9**	**D**	**10**	**A**
11	**C**	**12**	**D**	**13**	**C**	**14**	**C**	**15**	**C**	**16**	**C**	**17**	**B**	**18**	**B**	**19**	**B**	**20**	**C**
21	**C**	**22**	**D**	**23**	**C**	**24**	**B**	**25**	**C**	**26**	**C**	**27**	**B**	**28**	**D**	**29**	**C**	**30**	**A**
31	**D**	**32**	**C**	**33**	**A**	**34**	**A**	**35**	**A**	**36**	**B**	**37**	**A**	**38**	**A**	**39**	**D**	**40**	**C**

CHAPTER 10

(1) A lens which converges a beam of parallel rays to a point is called
(a) Diverging (or concave) lens
(b) Converging (or convex) lens
(c) Plano concave lens
(d) Plano convex lens

(2) A point where the incident parallel rays of light converge or appear to diverge after passing through a lens is called
(a) Center of curvature
(b) Focus
(c) Optical centre
(d) Aperture

(3) The diameter of a lens is called
(a) Focal length
(b) Principal axis
(c) Aperture
(d) Radius of curvature

(4) In going form a denser to rarer medium a array of light is
(a) undeviated
(b) bent away form the normal
(c) bent towards the normal
(d) polarized

(5) Unit of power of a lens is
(a) Meter
(b) watt
(c) dioptre
(d) horsepower

(6) Dioptre power of an concave lens of 10 cm focal length is
(a) 10 dioptre
(b) -10 dioptre
(c) 1/10 dioptre
(d) -1/10 dioptre

(7) The power of a concave lens is
(a) real
(b) virtual
(c) positive
(d) negative

(8) The minimum distance between an object and its real image in a convex lens is
a. 2 f
b. 2.5 f
c. 3 f
d. 4f

(9) If an object is placed away form '2f' of a converging lens, then the image will be
a. Real and erect
b. Virtual and erect
c. Real and inverted
d. Virtual

(10) A convex lens gives a virtual image only when the objects leis
   a. Between principal focus and center of curvature
   b. Beyond 2 f
   c. At the principal focus
   d. Between principal focus and optical center

(11) Magnifying power of simple microscope
   a. Increase with increase in focal length
   b. Increase with decrease in focal length
   c. No effect with decrease or increase with focal length
   d. List distance of distinct vision

(12) Image of an object 5 mm high is only 1 cm high. Magnification produced by lens is
   a. 0.5
   b. 0.2
   c. 1
   d. 2

(13) The least distance of distinct vision for a normal eye is
   a. 15cm
   b. 25cm
   c. 30cm
   d. 40cm

(14) least distance of distinct vision
   a. increases with increase in age
   b. decrease with increaser in age
   c. neither increases nor decreases
   d. becomes infinite after 60 years

(15) If a convex lens of large aperture fails to converge the light rays incident on it to a single point, it is said to suffer form
   a. Chromatic aberration
   b. Spherical aberration
   c. Both spherical and chromatic
   d. Distortion

(16) Two convex lenses of equal focal length 'f' are placed in contact, the resultant focal length of the combination is
   a. Zero
   b. f
   c. 2f
   d. f/2

(17) A convex lens of focal length 'f_1'and a concave lens of focal length 'f_2' are placed in contact. The focal length of the combination is
   a. $f_2 + f_1$
   b. $f_2 – f_1$
   c. f_1f_2/f_2+f_1
   d. f_1f_2/f_1-f_2

(18) Final image produced by a compound microscope is
   a. Real and inverted
   b. Real and erect
   c. Virtual and erect
   d. Virtual and inverted.

(19) for normal adjustment, length of astronomical telescope is
a. $f_o + f_e$
b. $f_o - f_e$
c. f_o/f_e
d. f_e/f_o

(20) In multimode step index fibre the refractive index of core and cladding is
a. Same
b. Different
c. Zero
d. Different with refractive index of core higher than cladding

(21) Dispersional effect may produced error in light signals. This type of error is minimum in.
a. Single mode step index fibre
b. Multimode step index fibre
c. Multimode graded index fibre
d. Monomode step index fibre

(22) Light signals passes through multimode graded fibre due to .
a. Continuous refraction
b. Total internal reflection
c. Both continuous refraction and total internal reflection
d. Diffraction

(23) Which one type of fibre is more suitable for transmission of signals in which white light is used?
a. Mono mode step index fibre
b. Multi mode step index fibre
c. Multi mode graded index fibre
d. Single mode step index fibre

(24) Critical angle is that incident angle in denser medium for which angle of refraction is.
a. 0^o
b. 45^o
c. 90^o
d. 180^o

(25) There is no noticeable boundary between core and cladding.
a. Multi mode step index fibre
b. Multi mode graded index fibre
c. Single mode step index fibre
d. All types of fibre

(26) The electrical signals change into light signals for transmission through optical fibre. A light pulse represent.
a. Zero (0)
b. One (1)
c. Both zero (0) and one (1)
d. Neither zero (0) nor one (1)

(27) A lens, which is thicker at the center and thicker at the edges, is called.
a. Concave lens
b. Convex lens
c. Plano convex lens
d. Plano concave lens

(28) A spectrometer is used to find.
a. Wave length of light
b. Refractive index of the prism
c. Wavelength of different colours
d. None

(29) If a convex lens of focal length ‘f’ is cut into two identical halves along the lens diameter, the focal length of each half is.
a. f
b. f/2
c. 2f
d. 3f/2

(30) A convex and concave lens of focal length ‘f’ are in contact, the focal length of the combination will be.
a. Zero
b. f/2
c. 2f
d. Infinite

(31) A double convex lens acts as a diverging lens when the object is placed
(a) at the focus (b) at 2f
(c) between f and 2f (d) within the focal length

(32) The least distance of distinct vision for normal eye is approximately
(a) 10 cm (b) 15 cm
(c) 20 cm (d) 25 cm

(33) White light does not focus to a single point after passing through a convex lens due to
(a) chromatic aberration
(b) spherical aberration
(c) distortion
(d) spherical and chromatic aberrations

(34) Chromatic aberration can be removed by using
(a) concave lens
(b) combination of concave and convex lenses
(c) two convex lenses
(d) two concave lenses

(35) Spherical aberration can be reduced by using
(a) double convex lens
(b) central portion of the lens
(c) edge portion of the lens
(d) parallel rays

(36) If placed in contact, the focal length of the combination of two convex lenses of equal focal lengths f, will be
(a) zero (b) f/2
(c) f (d) 2f

(37) If a single convex lens is placed close to the eye, it can be used as a
(a) telescope
(b) simple microscope
(c) compound microscope
(d) refracting telescope

(38) If d is the distance of distinct vision, the magnifying power of a magnifying glass of focal length f is
(a) d/f (b) f/d
(c) 1 + d/f (d) 1 + f/d

(39) The objective of a microscope is a lens of
(a) large focal length and converging properties
(b) moderate focal length and diverging properties
(c) very short focal length and converging properties
(d) moderate focal length and converging properties

(40) The magnifying power of a compound microscope in terms of the magnification of the objective and magnifying power of the eyepiece is given by

(a) $M = \frac{p_o}{q_o}(1 + \frac{f_e}{d})$ (b) $\frac{q_o}{p_o}(1 + \frac{d}{f_e})$

(c) $\frac{q_o}{p_o}(1 + \frac{d}{f_e})$ (d) $\frac{p_o}{q_o}(1 + \frac{d}{f_e})$

ANSWER																			
1	B	2	B	3	C	4	B	5	C	6	B	7	D	8	D	9	C	10	D
11	B	12	D	13	B	14	A	15	B	16	D	17	D	18	D	19	A	20	D
21	C	22	A	23	C	24	C	25	B	26	B	27	B	28	D	29	C	30	D
31	D	32	D	33	B	34	B	35	B	36	B	37	B	38	C	39	C	40	B