بنك الأسئلة في مقرر الفيزياء العامة لطلاب كلية العلوم (101فيز-4)

Ques. no.	Question					
	Chapter 1:- Units and Dimensions					
1	The dimensional form of the force is:					
	A	ML^2T^{-2}	**B**	MLT^{-2}	**C**	MLT^{-1}
2	The unit of the gravitational force is:					
	A	$kg.m^2s^{-2}$	**B**	$kg.m^2s^{-3}$	**C**	$kg.\ m\ s^{-2}$
3	According to dimensional analysis technique, the expression ($T=\sqrt{\frac{l}{g}}$) is correct (g is the gravity, T is time and l is length):					
	A	YES	**B**	No	**C**	
4	According to dimensional analysis technique, the expression ($F=\frac{mv^2}{t}$) is correct (Where F is the force; m is the mass; v is the velocity and t is the time):					
	A	YES	**B**	NO	**C**	
5	Choose the correct units from column B corresponding to the right quantity in the column A.					
	A		**B**		**C**	

A	B
a. Power	1. kg/m^3
b. Density	2. $Kg\ m/s^2$
c. Momentum	3. $Kg\ m^2/s^2$
d. Work	4. kg m/s
e. Force	5. $Kg\ m^2/s^3$

6	The dimensional form of Pressure is:					
	A	$kg\ /m.s^2$	**B**	M/LT^2	**C**	$M.L/s^2$
7	The dimensional form of density is:					
	A	ML^3	**B**	ML	**C**	ML^{-3}
8	The unit of weight is:					
	A	kg	**B**	Newton	**C**	Joule
9	In SI units, Joule is equivalent to:					
	A	N/m	**B**	N. m	**C**	N/m^2
10	Which of the following expressions is correct?					
	A	Force has unit ($kg\ m/s^2$) and dimension (MLT^{-1}).	**B**	Work has unit ($kg\ m^2/s^3$) and dimension (ML^2T^{-3}).	**C**	Momentum has unit (kgm/s) and dimension (MLT^{-1})

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Ques. no.	Question					
11	Which of the following expressions is correct?	**A**	Volume has unit (m^3) and dimension (L^4)	**B**	Force has unit (kg m/s) and dimension (MLT^{-1})	**C**	Pressure has unit kg/ms^2 and dimension $ML^{-1}T^{-2}$
12	Which of the following expressions is correct?	**A**	Acceleration has unit m^2/s^2 and dimension $L^{-1}T^2$	**B**	Work has unit ($kg\ m^2/s^2$) and dimension (ML^2T^2)	**C**	Density has unit kg/m^3 and dimension ML^{-3}
13	Which of the following expressions is correct?	**A**	Velocity has unit (m/s) and dimension (M/L^{-1})	**B**	Force has unit ($kg\ m/s^2$) and dimension (MLT^{-2})	**C**	Pressure has unit kg/ms^3 and dimension $ML^{-1}T^{-3}$
14	In SI units, Newton is equivalent to:	**A**	Kg .m/s	**B**	$kg.m/s^2$	**C**	$kg.m^2/s^2$
15	The SI unit of pressure is Pascal and is equivalent to:	**A**	$Kg\ m\ s^2$	**B**	$kg\ m^{-1}\ s^{-2}$	**C**	$kg\ m^{-1}\ s^2$
16	The SI unit of pressure is the Pascal and is defined as:	**A**	N/m^2	**B**	N/m^3	**C**	N^2/m^2
17	The Joule is equivalent to in SI units:	**A**	N/m	**B**	N. m	**C**	N/m^2
18	Develop the precise form of the following expression: $at = k\ v^n\ x^m$ where, a is acceleration, t is time , x is a distance and v is velocity.	**A**	n=1, m= -1	**B**	n=2, m= -1	**C**	n=1, m= 0
19	Is the expression v = at dimensionally correct or not, where v is velocity, a is acceleration and t is time	**A**	Correct	**B**	Incorrect	**C**	
20	Using the dimensional analysis, check the validity of the equation: $x^2 = (1/2)\ at^2$, where, x is the distance, a is the acceleration and t is the time	**A**	Correct	**B**	Incorrect	**C**	

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Ques. no.	Question
	Chapter 1, Units and dimensions
21	Test the validity of the expression $t = 2\pi\sqrt{\frac{\ell}{g}}$, where, t is the time, ℓ is the length and g is the acceleration due to gravity. **A** Correct **B** Incorrect **C**
22	If $v = a^n x^{m-3}$, where x is displacement, a is acceleration, t is time and n and m are exponents, determine the values of n and m using the dimensional analysis **A** (n= 1) , (m= -2) **B** (n= 0.5), (m= 3.5) **C** (n=2) , (m= 1)
23	The unit of the Resistance is: A Ω B Ω/m C Ω-1
24	The unit of the area is: A m^2 B m/s C L^2
25	The dimension of the volume is: A L^3 B L^{-3} C m^3
26	The basic physical quantities are: A Length, area and time B Length, mass and time C Mass, time and volume
27	Is the expression v = ax dimensionally correct or not, where v is velocity, a is acceleration and x is distance. A Correct B Incorrect C
	Chapter 2:- Vectors:
28	If, in Cartesian coordinate x =11cm and y =15cm, what is θ in polar coordinate? **A** 53.7° **B** 63.1° **C** 66.5°
29	Which of the following is a vector quantity? **A** Mass **B** Force **C** Volume
30	If a body's initial position at time t_1 is $\vec{r}_1 = 3\hat{i} + 5\hat{j}$ and its position at a later time t_2 is $\vec{r}_2 = 6\hat{i} + 9\hat{j}$, its displacement between t_1 and t_2 is: **A** $3\hat{i} + 5\hat{j}$ **B** $3\hat{i} + 4\hat{j}$ **C** $-3\hat{i} + 4\hat{j}$

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31	The polar coordinate of (r, θ) of a Cartesian coordinate (-3.5,-2.5) is:					
	A	(4.3, 216°)	**B**	(10, 100°)	**C**	(120, 17°)
32	What are the Cartesian coordinates of the point (r, θ) = (3, 60°) ?					
	A	(1.8, 2.1)	**B**	. (1.5, 2.6)	**C**	(1.5, 3.6)
33	**A**	(2.3, 3.2)	**B**	(3.0, 2.0)	**C**	(4.6, 6.9)
34	If a vector has an x-component of 9 and a y-component of 12, what is the magnitude of this vector?					
	A	19	**B**	15	**C**	17
35	If a vector has an x-component of 0.3 and a y-component of 0.4, what is the magnitude of this vector?					
	A	9	**B**	0.5	**C**	7
36	The magnitude of the summation of the vectors and is :					
	A	3.5m	**B**	5m	**C**	4.47m
37	Which of the following is not a vector quantity?					
	A	Velocity	**B**	time	**C**	acceleration
38	Three vectors are given by: $\vec{A} = 3i + 3j - 4k$, $\vec{B} = -2i - 4j + 2k$ *and* $\vec{C} = 2i + j - 2k$. The vector {A+ 2B+ C}is:					
	A	$1i - 4j - 2k$	**B**	$-3i + 4j - 2k$	**C**	$-3i - 4j + 2k$
39	The Cartesian coordinates of the point (r, θ) = (5, 30°) is:					
	A	(2.5,4.3)	**B**	(4.3, 2.5)	**C**	(15,6)
40	What are the Cartesian coordinates of the point (r, θ) = (3, 60°) ?					
	A	(1.5, 2.17)	**B**	(1.5, 2.59)	**C**	(1.5, 3.64)

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41	If x =12cm and y =13cm what is the angle θ?					
	A	51.7°	**B**	47.29°	**C**	46.1°
42	Which of the following is a vector quantity?					
	A	Momentum	**B**	Speed	**C**	Work
43	Which of the following is a vector quantity?					
	A	Weight	**B**	speed	**C**	Energy
44	17. Which of the following is vector quantity?					
	A	Displacement	**B**	Speed	**C**	Density
45	Which of the following is not scalar quantity?					
	A	Energy	**B**	speed	**C**	Acceleration
46	Which of the following is not vector quantity?					
	A	Displacement	**B**	Distance	**C**	Momentum.
47	Which of the following is vector quantity?					
	A	Energy	**B**	Velocity	**C**	Pressure
48	The Cartesian coordinates of the point (r, Θ)= $(3,30^0)$ is:					
	A	(3.6, 1.5).	**B**	(3.9, 0.9)	**C**	(2.6, 1.5)
49	The Cartesian coordinates of the point (r, Θ) = $(7,45^0)$ is:					
	A	(4.95, 4.5)	**B**	(4.95, 4.95)	**C**	(4.1, 4.95)
50	The Cartesian coordinates of the point (r, Θ)= $(7,60^0)$ is:					
	A	(3.7, 4.5)	**B**	(3.5, 6.1)	**C**	(2.6, 5)

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51	The Cartesian coordinates of the point(r, Θ)= $(4,90^0)$ is:					
	A	(4, 4.1)	**B**	(0, 4)	**C**	(2.3, 2.3)
52	If x= 22cm and y= 35cm what is the angle Θ**?**					
	A	52.15^0	**B**	38.5^0	**C**	57.85^0
53	If x= 5cm and y= 7cm what is the angle Θ?					
	A	54.46^0	**B**	59.6^0	**C**	49.7^0
54	If x= 12cm and y= 15cm what is the angle Θ?					
	A	61.41^0	**B**	58.73^0	**C**	51.34^0
55	If the Cartesian coordinates of a point is (5.4, 4.7) m. Find the polar coordinates of this point?					
	A	(6m , 41.035^0).	**B**	(4m , 31.035^0)	**C**	(7.16m , 41.035^0)
56	Find the magnitude of the summation of the vectors A and B and the angle between them . Where, $\vec{A}=(2\hat{i}+2\hat{j})m$, $\vec{B}=(2\hat{i}-4\hat{j})m$					
	A	(5.51 m, 23^0)	**B**	(4.47 m, 333.4^0)	**C**	(5.55 m, 333.4^0)
57	Find the magnitude of the summation of the vectors A and B and the angle between them . Where, $\vec{A}=(3.5\hat{i}+5\hat{j})m$, $\vec{B}=(15\hat{i}-6\hat{j})m$					
	A	(15.5 m, 233^0)	**B**	(18.53 m, 356.9^0)	**C**	(18.61 m, 333.4^0)
58	Find the components and magnitude of a body travels to three consecutive displacements where, $\vec{d}_1=15\hat{i}+30\hat{j}+12\hat{k}$, $\vec{d}_2=23\hat{i}-14\hat{j}-5\hat{k}$, $\vec{d}_3=-13\hat{i}+15\hat{j}$					
	A	$(\vec{R}=25\hat{i}+31\hat{j}+7\hat{k})$, (40, 4).	**B**	$(\vec{R}=25\hat{i}+31\hat{j}+7\hat{k})$, (43.5).	**C**	$(\vec{R}=28\hat{i}+33\hat{j}+7\hat{k})$,(40, 4).
59	If : $\vec{A}=4\hat{i}-3\hat{j}$, $\vec{B}=4\hat{i}-5\hat{j}$ find A) $\vec{A}.\vec{B}$ b) The angle between $\vec{A}$, $\vec{B}$.					
	A	(7, 5.8^0)	**B**	(16, 31.6^0)	**C**	(31, 14.36^0)
60	If $\vec{A}=\hat{i}+2\hat{j}+3\hat{k}$, $\vec{B}=2\hat{i}-3\hat{j}+\hat{k}$, Find $\vec{A}\times\vec{B}$					
	A	$11\hat{i}+5\hat{j}-7\hat{k}$	**B**	$6\hat{i}+5\hat{j}-7\hat{k}$	**C**	$11\hat{i}+5\hat{j}-9\hat{k}$

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61	If $\vec{A}=2\hat{i}-3\hat{j}+5\hat{k}$, $\vec{B}=\hat{i}-2\hat{j}+2\hat{k}$ Find $\vec{A}\times\vec{B}$					
	A	$(11\hat{i}+5\hat{j}-7\hat{k})$	**B**	$(6\hat{i}+5\hat{j}-7\hat{k})$	**C**	$(4\hat{i}+\hat{j}-\hat{k})$
	Chapter 3:- Motion in one dimension:					
62	The position of a particle moving along the *x* axis is given by x= $(4t+2t^2)$ m, where *t* is in s. What is the average velocity in m/s during the time interval *t* = 2 s to *t* = 4 s?					
	A	16	**B**	- 4	**C**	18
63	A body increase its velocity from 3.0 m/s to 9.0 m/s in 0.80 s. What is the average acceleration of the body in m/s^2?					
	A	7.0	**B**	6.0	**C**	7.5
64	The particle's distance travelled divided by the total time interval is named:					
	A	Average velocity	**B**	Average speed.	**C**	Average acceleration
65	The velocity vector at t_i is $\vec{v}_i$ and the velocity vector at t_f is $\vec{v}_f$. Therefore the average acceleration of the particle during the time interval is:					
	A	$\vec{a}=\frac{\vec{v}_f+\vec{v}_i}{2}$	**B**	$\vec{a}=\frac{\vec{v}_f-\vec{v}_i}{t_f-t_i}$	**C**	$\vec{a}=\frac{\vec{v}_f+\vec{v}_i}{t_f+t_i}$
66	A particle with mass m moves along the x axis and its position varies with time according to the expression $x=-2t^2+4t$ m.. In the time interval t = 0 s to t = 1 s, the displacement of the particle is:					
	A	4m	**B**	2m	**C**	5m
67	The change of velocity of an object with time is:					
	A	Acceleration	**B**	Velocity	**C**	Mass
68	A jet lands on the aircraft carrier at 63 m/s. What its acceleration if it stops in 2 s?					
	A	31.5 m/s^2	**B**	43 m/s^2	**C**	- 43 m/s^2
69	A car move with velocity 120 m/s with acceleration (- 5 m/s^2), when it stops?					
	A	11. 7 s	**B**	17 s	**C**	24 s
70	Find the required time for a car to move 98 m if it started from rest and accelerated at 40 m/s^2					
	A	3.7 s	**B**	2.213 s	**C**	4.76 s

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71	A jet starts from rest with velocity, 700m/s, with acceleration 20 m/s^2, if it travels for 7 second. Find the distance which jet travelled.					
	A	900 m	**B**	657 m	**C**	490 m
72	A boy dropped a stone from a bridge. The stone takes 3 s to collide with water under the bridge neglecting any air friction. What is the height of the bridge over the water? (g = 9.8 m/s^2).					
	A	49 m	**B**	44.1 m	**C**	56 m
73	A ball through from a building with high 750 m, if the ball takes 10 s to reach to the ground, neglecting any air friction. What is the initial velocity (v_0) of ball? (g = 9.8 m/s^2).					
	A	49 m/s	**B**	44.1 m/s	**C**	26 m/s
74	The horizontal range of the projectile is (R) given by:					
	A	$\frac{2v_i^2 \sin\theta_i \cos\theta_i}{g}$	**B**	$\frac{v_i^2 \sin 2\theta_i \cos\theta_i}{2g}$	**C**	$\frac{v_i^2 \sin^2\theta}{g^2}$
75	The Instantaneous acceleration of the particle during the time interval is:					
	A	$\lim_{\Delta t\to 0}\frac{\Delta v}{\Delta t}$	**B**	$\lim_{\Delta t\to 0}\frac{\Delta x}{2}$	**C**	$\frac{\vec{v}_f - \vec{v}_i}{t_f - t_i}$
76	The change of object's position over interval is:					
	A	distance	**B**	Displacement	**C**	velocity
77	The difference between the final and initial position of an object is:					
	A	displacement	**B**	Area	**C**	distance
78	The location of the particle with respect to a chosen reference point is:					
	A	distance	**B**	Position	**C**	displacement
79	The length of a path followed by a particle is:					
	A	distance	**B**	Position	**C**	displacement
80	The displacement divided by time interval is:					
	A	average speed	**B**	average velocity	**C**	instantaneous speed

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81	Average velocity is the .....divided by time interval.					
	A	distance	**B**	Displacement	**C**	speed
82	The total distance divided by total time interval is:					
	A	average speed	**B**	average velocity	**C**	instantaneous speed
83	Average speed is the .....divided by total time interval.					
	A	distance	**B**	Displacement	**C**	speed
84	The limit of average velocity as the time interval Δt approaches zero is:					
	A	instantaneous speed	**B**	instantaneous velocity	**C**	average velocity
85	The instantaneous velocity is the limit of .....as the time interval Δt approaches zero is:					
	A	average velocity	**B**	C	**C**	average speed
86	The magnitude of the instantaneous velocity is:					
	A	instantaneous speed	**B**	instantaneous velocity	**C**	average speed
87	The magnitude of the .....is the instantaneous speed:					
	A	average speed	**B**	instantaneous velocity	**C**	average velocity
88	The limit of average acceleration as the time interval Δt approaches zero is:					
	A	instantaneous acceleration	**B**	instantaneous velocity	**C**	average speed
89	The limit of ..... as the time interval Δt approaches zero is the instantaneous acceleration:					
	A	instantaneous velocity	**B**	average acceleration	**C**	average speed
	Chapter 4:- Newton Laws:					
90	When no force acts on an object, the acceleration of the object is:					
	A	Positive	**B**	Zero	**C**	Negative

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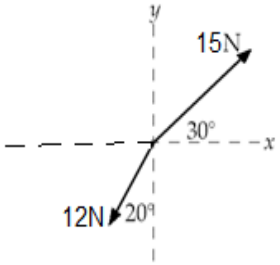
91	A frame of reference in which Newton's first law is valid, called an:					
	A	non-inertial reference frame	**B**	inertial reference frame	**C**	constant velocity reference frame
92	Two forces, F_1= 20N and F_2= 40N acts on a 10 kg mass in the same direction. What is the acceleration of the mass in m/s^2?					
	A	3	**B**	6	**C**	7
93	A ……. causes an object to accelerate.					
	A	Momentum	**B**	Power	**C**	Force
94	A 2000 kg car moves straight down the highway at a constant velocity of 35 m/s for 7 second. The resultant force on the car in kN:					
	A	10 kN	**B**	70 kN	**C**	0 kN
95	When no force acts on an object, the acceleration of the object is zero, this is:					
	A	Newton's first law	**B**	Newton's second law	**C**	Newton's third law
96	An 1800 kg car moves at a constant speed of 19 m/s. What is the resultant force acting on the car in N?					
	A	0	**B**	4.9	**C**	9.8
97	A jet lands on the aircraft carrier at 63 m/s. What its acceleration if it stops in 2s?					
	A	-33	**B**	63	**C**	-31.5
98	The action force is equal in magnitude to the reaction force and:					
	A	Opposite in direction	**B**	in the same direction	**C**	in vertical direction.
99	The two forces shown act on a particle. What is the magnitude of the resultant of these three forces? 					
	A	6.12 N	**B**	5.72 N	**C**	4.67 N
100	Acceleration is direct proportional to:					
	A	Force	**B**	mass	**C**	time

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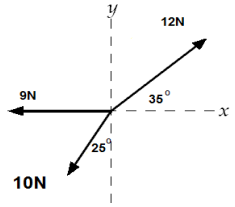
101	The three forces shown act on a particle. What is the magnitude of the resultant of these three forces? 					
	A	3.5 N	**B**	2.5 N	**C**	2.9 N
102	Electromagnetic forces are forces between:					
	A	Objects	**B**	mass	**C**	time
103	The direction of the net force on an object is:					
	A	the same as the direction of the object's velocity	**B**	opposite to the direction of the object's velocity.	**C**	in the same direction as the object's acceleration
104	When no forces are acting on an object, the acceleration of the object is:					
	A	Positive	**B**	zero	**C**	Negative
105	The force is define as:					
	A	The ability to makes change in state of the body	**B**	The net force equal to the maximum work done on the body	**C**	The product of mass of body velocity
106	There are four fundamental forces:					
	A	Gravitational force, electromagnetic forces, nuclear force and weak forces	**B**	Electromagnetic forces, nuclear force, weak forces and dynamic force	**C**	Nuclear force, weak forces, dynamic force and Gravitational force
107	The Newton's first law states that:					
	A	In the absence of external forces, an object remains in its state, $\Sigma F = 0$.	**B**	In the absence of external forces, an object remains in its state, $\Sigma F = W$.	**C**	The force acts on a body can't changes its state, $\Sigma F = 0$.
108	The Newton's second law formula is:					
	A	F= ma.	**B**	w= ma.	**C**	F= ma+ w.
109	The Newton's second law states that:					
	A	The acceleration of an object is directly proportional to the net force acting on it.	**B**	In the absence of external forces, an object remains in its state	**C**	The force acts on a body can't changes its state, $\Sigma F = 0$.

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110	Man push a block of mass 80 kg, on the horizontal ground with 120 N force (neglecting the friction), find the acceleration of block's motion?.					
	A	a = 2.2 m/s^2	**B**	a = 1.5 m/s^2	**C**	a = 1.2 m/s^2.
111	A car moves with acceleration of 5.7 m/s^2 with force 4897 N, determine its mass.					
	A	m= 767.8 kg	**B**	m= 900 kg.	**C**	m= 859.12 kg.
112	A car with mass 2000 kg moves with velocity 20 m/s on a friction surface. If the car takes 100 m to stop, determine the friction force?					
	A	F = - 5000 N	**B**	F = - 4500N	**C**	F = - 4000 N
113	Gravitational Force is the force that:					
	A	The Earth exerts on an body, it is a *vector* quantity with unit (kg m/s^2).	**B**	An body exerts on the Earth, it is a scalar quantity with unit (kg m/s^2).	**C**	An body exerts on the Earth, it is a scalar quantity with dimension (MLT^{-2})
114	The Newton's third law states that:					
	A	The action force is equal in magnitude to the reaction force but opposite in direction, with mathematical form ($F_{12} = - F_{21}$).	**B**	The action force is equal in magnitude to the reaction force but opposite in direction, with mathematical form($F_{12} = F_{21}$).	**C**	The action force is equal in magnitude to the reaction force and the same in direction, with mathematical form($F_{12} = - F_{21}$)
115	The gravitational force acting on an object is its:					
	A	Weight	**B**	Mass	**C**	acceleration
	Chapter 5:- Work, Power, Energy and Momentum:					
116	Work done by a force on a moving object is zero, when the force applied is……..to the displacement of its point of application					
	A	Parallel	**B**	Horizontal	**C**	Perpendicular
117	The Linear momentum of a particle of mass 120 kg moving with velocity of 30 m/s in kg. m/s is:					
	A	2.4 x10^3	**B**	4.2 x10^4	**C**	3.6 x10^3
118	The time rate of energy transfer is called:					
	A	Momentum	**B**	Power	**C**	Pressure
119	Which of the following is that form of energy associated with an object's motion?					
	A	potential	**B**	Nuclear	**C**	Kinetic
120	What is the kinetic energy in Joule for an airplane of mass 8000 kg moving at a speed of 100 m/s?					
	A	5 x 10^7	**B**	4 x 10^6	**C**	4 x 10^7

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121	An object of mass 2 kg is lifted a height 5 m from the floor to a table by a woman. Its change in gravitational potential energy is:					
	A	98 Joule	**B**	10 Joule	**C**	98 Newton
122	The kinetic energy in Joule for an airplane of mass 350 kg moving at a speed of 120 m/s is:					
	A	5.2×10^6	**B**	2.52×10^6	**C**	3.2×10^6
123	The work done when a force of 1.56×10^2 N exerts at an angle $\theta = 45°$ to move a box of 50 kg for a distance 7 m is:					
	A	712.6 Joule	**B**	746.9 Joule	**C**	772.1 Joule
124	An elevator has a mass of 1600 kg and is carrying passengers having a total mass of 200 kg. A constant friction force of 4000 N retards its motion upward. What power delivered by the motor is required to lift the elevator at a constant speed of 3 m/s? (g = 9.8 m/s^2)					
	A	P = 6543 W	**B**	P = 64920 W	**C**	P = 74920 W
125	The scalar product of the acting force and the displacement in direction of the force is:					
	A	momentum	**B**	power	**C**	work
126	The work done by the force in the time interval Δt is:					
	A	average velocity	**B**	average acceleration	**C**	average power
127	..... is the product of the mass and the velocity.					
	A	force	**B**	energy	**C**	linear momentum
	Chapter 6:- Pressure and Archimedes's:					
128	The pressure on an object of area 6 m^2 under a force of 22 Newton is**:**					
	A	132 Pascal	**B**	3.66 Pascal	**C**	28 Pascal
129	The magnitude of the Buoyant Forces always equals the ……of the fluid displaced by the object.					
	A	Mass	**B**	Density	**C**	Weight
130	A particle ……..in water, if the density of Object is greater than the Density of fluid.					
	A	Immersed	**B**	float	**C**	semi-merged

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131	The pressure P at a depth h below a point in the liquid at which the pressure is Po is greater than Po by amount…….					
	A	ρ/hg	**B**	ρh/g	**C**	Phg
132	The Upward force exerted by a fluid on any immersed object is called the:					
	A	Buoyant Forces	**B**	Gravitational forces	**C**	Mechanical forces
133	A bar of a solid metal submerged in a fluid because the density of the bar is …… that of the water it displaces.					
	A	less than	**B**	greater than	**C**	the same as
134	The magnitude of the ……always equals the weight of the fluid displaced by the object.					
	A	Pressure	**B**	friction force	**C**	buoyant force
135	The pressure produces due to applying a force of 3.5×10^{4} Newton on a surface of area 2.3×10^{-3} m^2 is:					
	A	1.52×10^{7} Pa	**B**	1.25×10^{6} Pa	**C**	1.52×10^{5} Pa
136	The definition of density is ……, while, pressure is defined as:					
	A	(Density, is the mass per unit volume) while, (Pressure, is the force per unit area)	**B**	(Density, is the force per unit area) while, (pressure is the mass per unit volume).	**C**	(Density, is the mass per unit area) while, (pressure is the mass per unit volume)
137	The mass per unit volume is:					
	A	Force	**B**	density	**C**	acceleration
138	The density is the mass per unit ……					
	A	Length	**B**	Volume	**C**	area
139	The force per unit area. is:					
	A	Pressure	**B**	Work	**C**	power
140	The force per unit ……. is the pressure.					
	A	Volume	**B**	Area	**C**	length

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141	The mattress of a water bed is 5 m long by 7 m wide and 150 cm deep. Find the weight of the water and Find the pressure exerted by the water on the floor. (ρ = 1000 kg/m^3 and g = 9.8 m/s^2).					
	A	(F_g = 1476 N, P = 2940 P_a)	**B**	(F_g = 1176 N, P = 2740 P_a).	**C**	(F_g = 514500 N, P = 14700 P_a).
142	Estimate the force exerted on your eardrum due to the water above when you are swimming at the bottom of a pool that is 3.57 m deep. (Suppose that the surface area of the eardrum (A) = 2.5 × 10^{-5} m^2, ρ = 1000 kg/m^3 and g = 9.8 m/s^2).					
	A	0.875 N	**B**	1.25 N	**C**	1.52N
143	An iceberg floating in seawater, The hidden ice can damage a ship that is still a considerable distance from the visible ice. What fraction of the iceberg lies below the water level? ($\rho_{seawater}$ = 1030 kg/m^3, ρ_{ice} = 917 kg/m^3).					
	A	77%	**B**	89%	**C**	68%

Chapter 7:- Electric Current:

Ques. no.	Question					
144	The current density (J) is given by:					
	A	n q A	**B**	σE.	**C**	both answers
145	The unit of the electric current (Ampere) is a fundamental unit in SI units and is given by:					
	A	C.s	**B**	1C/s^2	**C**	1 C/s
146	The resistivity of any matter is equal to:					
	A	1/σ	**B**	Σ	**C**	1/σ^2
147	If the voltage is 220V and the current is 10A, the resistance is:					
	A	22 ohm	**B**	22 watt	**C**	2200 ohm
148	The 15-gauge copper wire in a typical residential building has a cross-sectional area of 6.22 × 10^{-4} m^2. If it carries a current of 15 A, what is the drift speed of the electrons? Assuming that each copper atom contributes one free electron to the current. (Consider the copper contains 6.35 × 10^{28} electrons/m^3 and q = 1.6 × 10^{-19} C).					
	A	3.73× 10^{-3} m/s	**B**	2.37× 10^{-4} m/s	**C**	2.52× 10^{-5} m/s
149	Calculate the resistance of an aluminium cylinder that has a length of 14 cm and a cross-sectional area of 3.8 × 10^{-5} m^2 if the resistivity of aluminium is 5.352 × 10^{-7} Ω.m.					
	A	1.22× 10^{-3} Ω	**B**	1.45× 10^{-4} Ω	**C**	1.97× 10^{-3} Ω
150	Calculate the resistance per unit length of a 33-gauge Ni chrome wire, which has a radius of 0.457 mm and if the resistivity of Ni chrome is 1.5x10^{-6} Ω.m.					
	A	3.182 Ω/m	**B**	2.286 Ω/m	**C**	2.351 Ω/m

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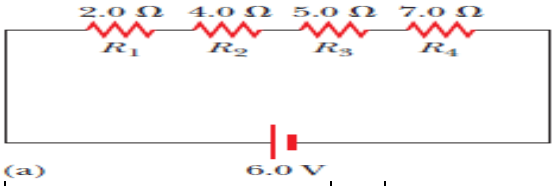
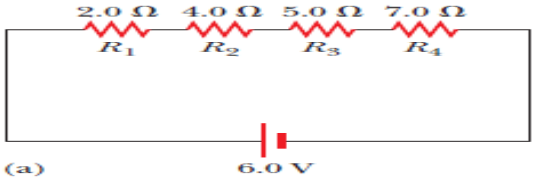
150	Four resistors are arranged as shown in Figure (a). Find (a) the equivalent resistance of the circuit 	**A**	18Ω	**B**	12Ω	**C**	22Ω
152	Four resistors are arranged as shown in Figure (a). Find (b) the current in the circuit if the emf of the battery is 6.0 V 	**A**	0.333A	**B**	0.223A	**C**	0.362A
153	The unit of potential difference, the Volt, is equivalent to which of the following?	**A**	Ω/A	**B**	A/Ω	**C**	AΩ
154	The direction of electric current (I) is takes the same direction of	**A**	Negative charges	**B**	positive charges	**C**	electron
155	The potential difference V across a constant resistor is directly proportional to .....at constant temperature.	**A**	Current	**B**	Resistance	**C**	Pressure
156	Resistivity is the resistance per unit.....	**A**	area	**B**	length	**C**	Volume
157	Calculate the resistance of an glass cylinder that has a length of 10 cm and a cross-sectional area of 3.8×10^{-5} m^2 if the resistivity of glass is 3×10^{10} Ω.m	**A**	1.97×10^{11} Ω	**B**	1.9×10^{10} Ω	**C**	1.5×10^{13} Ω
158	Three resistors 3.0, 6.0 and 9.0 Ohms are connected in parallel. Find the equivalent resistance of the circuit.	**A**	2.2 Ω	**B**	1.9 Ω	**C**	1.6 Ω
159	Four resistors 2.0, 4.0, 5.0, 8.0 are connected. Find the equivalent for them if they connected: a- In series b- In parallel.	**A**	(22, 0.93) Ω	**B**	(19, 0.93) Ω	**C**	(19, 0.88) Ω

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160	The drift velocity of the electrons is directly proportional to:					
	A	Electric current	**B**	Cross sectional area	**C**	Number of electrons per unit volume
	Chapter 8:- Sound Waves:					
161	The waves which have a frequency above the audible range :					
	A	Audible waves	**B**	Infrasonic waves	**C**	Ultrasonic waves
162	What is the speed of sound (m/s) for Seawater; which has a bulk modulus $2.38x10^9 N/m^2$ and a density 1030 kg/m^3 ?					
	A	$1.22 x10^3$	**B**	$1.52 x 10^3$	**C**	$1.25 x 10^3$
163	Find the speed of sound in water, which has a bulk modulus of 2.7×10^9 N/m^2 at a temperature of 0 ^oC and a density of 1.1×10^3 kg/m^3.					
	A	1566.69 m/s	**B**	1446.19 m/s	**C**	1362.33 m/s
164	If a solid bar of aluminium 1.00 m long is struck at one end with a hammer, a longitudinal pulse propagates down the bar. Find the speed of sound in the bar, which has a Young's modulus of 7.0×10^{10} Pa and a density of 2.7×10^3 kg/m^3.					
	A	4952 m/s	**B**	5100 m/s	**C**	5352 m/s
165	Calculate the speed of sound in ethyl alcohol, which has a density of 806 kg/m^3 and bulk modulus of 1.0×10^9 Pa.					
	A	$2.3\times10^3 m/s$	**B**	$3.3\times10^3 m/s$	**C**	$1.1\times10^3 m/s$
166	Compute the speed of sound in air at 35.0C.					
	A	334 m/s	**B**	352 m/s	**C**	343 m/s
167	Two identical machines are positioned the same distance from a worker. The intensity of sound delivered by each machine at the location of the worker is 4.6×10^{-9} W/m^2. Find the sound level heard by the worker ($I_0 = 1 \times 10^{-12}$ W/m^2) When one machine is operating.					
	A	36.62 dB	**B**	66.12 dB	**C**	56.11 dB
168	Two identical machines are positioned the same distance from a worker. The intensity of sound delivered by each machine at the location of the worker is 4.6×10^{-9} W/m^2. Find the sound level heard by the worker ($I_0 = 1 \times 10^{-12}$ W/m^2) When both machines are operating.					
	A	46.44 dB	**B**	39.63 dB	**C**	45.45 dB
169	Find the speed of sound in water, which has a bulk modulus of 2.13×10^9 N/m^2 at a temperature 32^oC and a density of 1.0×10^3 kg/m^3.					
	A	1459.45 m/s	**B**	1554.52 m/s	**C**	1554.52 m/s
170	Find the speed of sound in vehicle gasoline, which has a bulk modulus of 10.34×10^9 N/m^2 and a density of 0.737×10^3 kg/m^3 at 15.5^oC.					
	A	3232.6 m/s	**B**	3745.6 m/s	**C**	3543.2 m/s

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171	If a solid bar of brass 1.00 m long is struck at one end with a hammer, a longitudinal pulse propagates down the bar. Find the speed of sound in the bar, which has a Young's modulus of 1.0×10^{11} Pa and a density of 8.5×10^{3} kg/m^3.	**A**	3430 m/s	**B**	3243 m/s	**C**	3212 m/s
172	If a solid bar of brass 10.00 m long is struck at one end with a hammer, a longitudinal pulse propagates down the bar. Find the time required for the pulse to pass through the bar? The speed of sound in the bar is 3430 m/s, Young's modulus of brass is 1.0×10^{11} Pa and its density is 8.5×10^{3} kg/m^3.	**A**	0.0085 s	**B**	0.0123 s	**C**	0.0029 s
173	If a longitudinal pulse takes 1.0 sec to propagate through an aluminium bar of density 2.7×10^{3} kg/m^3 and a Young's modulus of 7.0×10^{10} Pa. What is the length of the bar?	**A**	4.5 km	**B**	5.1 km	**C**	6.2 km
174	What is the speed of sound in air at 50^{o}C? Where 331 m/s is the speed of sound in air at 0^{o}C.	**A**	370 m/s	**B**	360 m/s	**C**	343 m/s
175	Find sound level heard by a worker locating some distance from a machine if the machine intensity is 2×10^{-7} W/m^2. Considering that threshold intensity for ear is $I_0 = 1 \times 10^{-12}$ W/m^2)	**A**	43 dB	**B**	33 dB	**C**	53 dB
176	A home theatre consists of 6 speaker, two of them have 5x10-7 W/m2 each, two have $2x10^{-7}$ W/m^2 each, and two have $1x10^{-7}$ W/m2 each. What is the sound level heard by a person sitting in an equal distance from them?	**A**	55 dB	**B**	44 dB	**C**	62dB

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