ROLL NUMBER				

SET A

INDIAN SCHOOL MUSCAT
FIRST PERIODIC TEST

SUBJECT: PHYSICS

CLASS: XI **Sub.Code: 042** **Time Allotted: 50mts.**

11.09.2022 **Max. Marks: 20**

GENERAL INSTRUCTIONS:

(a) Answer all questions.
(b) There are 3 sections.
(c) Section A- case study 4 questions carry one mark each.
(d) Section B –Five short answer questions carry two marks each.
(e) Section C –Two short answer questions carry three marks each.
(f) Use log table, if necessary.

	SECTION A **CASE STUDY**	
1.	When an object is in motion, its position changes with time. So, the quantity that describes how fast is the position changing w.r.t. time and in what direction is given by average velocity. It is defined as the change in position or displacement (Δx) divided by the time interval (Δt) in which that displacement occurs. However, the quantity used to describe the rate of motion over the actual path, is average speed. It is defined as the total distance travelled by the object divided by the total time taken. (i) A 250 m long train is moving with a uniform velocity of 45 km/h. The time taken by the train to cross a bridge of length 750 m is: (a) 56 s (b) 68 s (c) 80 s (d) 92 s (ii) A truck requires 3 hrs. to complete a journey of 150 km. What is the average speed? (a) 50 km/h (b) 25 km/h (c) 15 km/h (d) 10 km/h	1 1

	(iii) The average speed of a car between points A and B is 20 m/s, between B and C is 15 m/s and between C and D is 10 m/s. What is the average speed between A and D, if the time taken in the mentioned sections is 20s, 10s and 5s respectively? (a) 17.14 m/s (b) 15 m/s (c) 10 m/s (d) 45 m/s (iv) A cyclist is moving on a circular track of radius 40 m completes half a revolution in 40 s. Its average velocity (in m/s) is: (a) zero (b) 2 (c) 4π (d) 8π	1 1
	SECTION B	
2.	State the advantages of SI over other systems of units.	2
3.	Derive the dimensional formulae of the following physical quantities: (a) Acceleration due to gravity (b) pressure (c) work (d) momentum	2
4.	(i)Write the dimensions of a & b in the formula $V = a + b\,t$, where V is velocity and t is time. (ii) State the number of significant figures in the following: (a) $0.007m^2$ (b) 2.64×10^{24} Kg	2
5.	Convert dimensionally energy of one joule into ergs.	2
6.	Draw the following graphs for an object projected upward with a velocity v_0, which comes back to the same point after some time: (i) Acceleration versus time graph. (ii) Velocity versus time graph	2
	SECTION C	
7.	(i) Derive $S = ut + 1/2at^2$ by graphically. (ii) A car moving along a straight highway with speed of 126kmph is brought to a stop within a distance of 200m. What is the retardation of the car (assumed uniform) and how long does it take for the car to stop?	3
8.	A planet moves around the sun in a nearly circular orbit. Its period of revolution T depends upon: (i) radius r of orbit (ii) mass M of the sun and (iii) the gravitational constant G. Show dimensionally that $T^2 \alpha r^3$.	3
	END OF THE QUESTION PAPER	

ROLL NUMBER					

SET B

INDIAN SCHOOL MUSCAT
FIRST PERIODIC TEST

SUBJECT: PHYSICS
Sub.Code: 042

CLASS: XI

Time Allotted: 50mts.

11.09.2022

Max. Marks: 20

GENERAL INSTRUCTIONS:

(a) Answer all questions.
(b) There are 3 sections.
(c) Section A case study 4 questions carry one mark each.
(d) Section B Five short answer questions carry two marks each.
(e) Section C Two short answer questions carry three marks each.
(f) Use log table, if necessary.

	SECTION A **CASE STUDY**	
1.	When an object is in motion, its position changes with time. So, the quantity that describes how fast is the position changing w.r.t. time and in what direction is given by average velocity. It is defined as the change in position or displacement (Δx) divided by the time interval (Δt) in which that displacement occurs. However, the quantity used to describe the rate of motion over the actual path, is average speed. It is defined as the total distance travelled by the object divided by the total time taken. (i) The average speed of a car between points A and B is 20 m/s, between B and C is 15 m/s and between C and D is 10 m/s. What is the average speed between A and D, if the time taken in the mentioned sections is 20s, 10s and 5s respectively? (a) 17.14 m/s (b) 15 m/s (c) 10 m/s (d) 45 m/s	1
	(ii) A cyclist moving on a circular track of radius 40 m completes half a revolution in 40 s. Its average velocity (in m/s) is: (a) zero (b) 2 (c) 4π (d) 8π	1

	(iii) A truck requires 3 hrs to complete a journey of 150 km. What is the average speed? (a) 50 km/h (b) 25 km/h (c) 15 km/h (d) 10 km/h	1
	(iv) A 250 m long train is moving with a uniform velocity of 45 km/h. The time taken by the train to cross a bridge of length 750 m is : (a) 56 s (b) 68 s (c) 80 s (d) 92 s	1
	SECTION B	
2.	(i)Write the dimensions of a & b in the formula $V = a + b\,t$, where V is velocity and t is time. (ii) State the number of significant figures in the following: (a) $0.007m^2$ (b) 2.64×10^{24} Kg	2
3.	Convert dimensionally energy of one joule into ergs.	2
4.	State the advantages of SI over other systems of units.	2
5.	Derive the dimensional formulae of the following physical quantities: (a) Acceleration due to gravity (b) pressure (c) work (d) momentum	2
6.	Draw the following graphs for an object projected upward with a velocity v_0, which comes back to the same point after some time: (i) Acceleration versus time graph. (ii) Velocity versus time graph	2
	SECTION C	
7.	(i) Derive $S = ut + 1/2at^2$ by graphically. (ii) A car moving along a straight highway with speed of 126 kmph is brought to a stop within a distance of 200m. What is the retardation of the car (assumed uniform) and how long does it take for the car to stop?	3
8.	Assuming that the mass M of the largest stone that can be moved by a flowing river depends upon the velocity v, the density of water ρ and the acceleration due to gravity g. Show that M varies with the sixth power of the velocity of flow.	3
	END OF THE QUESTION PAPER	

ROLL NUMBER				

SET C

INDIAN SCHOOL MUSCAT
FIRST PERIODIC TEST

SUBJECT: PHYSICS

CLASS: XI **Sub.Code: 042** **Time Allotted: 50mts.**

11.09.2022 **Max .Marks: 20**

GENERAL INSTRUCTIONS:

(a) Answer all questions.
(b) There are 3 sections.
(c) Section A case study 4 questions carry one mark each.
(d) Section B Five short answer questions carry two marks each.
(e) Section C two short answer questions carry three marks each.
(f) Use log tables, if necessary.

	SECTION A **CASE STUDY**	
1.	When an object is in motion, its position changes with time. So, the quantity that describes how fast is the position changing w.r.t. time and in what direction is given by average velocity. It is defined as the change in position or displacement (Δx) divided by the time interval (Δt) in which that displacement occur. However, the quantity used to describe the rate of motion over the actual path, is average speed. It is defined as the total distance travelled by the object divided by the total time taken. (i) A 250 m long train is moving with a uniform velocity of 45 km/h. The time taken by the train to cross a bridge of length 750 m is: (a) 56 s (b) 68 s (c) 80 s (d) 92 s (ii) A truck requires 3 hrs to complete a journey of 150 km. What is the average speed? (a) 50 km/h (b) 25 km/h (c) 15 km/h (d) 10 km/h	1 1

	(iii) The average speed of a car between points A and B is 20 m/s, between B and C is 15 m/s and between C and D is 10 m/s. What is the average speed between A and D, if the time taken in the mentioned sections is 20s, 10s and 5s respectively? (a) 17.14 m/s (b) 15 m/s (c) 10 m/s (d) 45 m/s	1
	(iv) A cyclist moving on a circular track of radius 40 m completes half a revolution in 40 s. Its average velocity (in m/s) is: (a) zero (b) 2 (c) 4π (d) 8π	1
	SECTION B	
2.	State the advantages of SI over other systems of units.	2
3.	Derive the dimensional formulae of the following physical quantities: (a) Acceleration due to gravity (b) pressure (c) work (d) momentum	2
4.	(i)Write the dimensions of a & b in the formula V = a + b t, where V is velocity and t is time. (ii) State the number of significant figures in the following: (a) $0.007m^2$ (b) 2.64×10^{24} Kg	2
5.	Convert dimensionally energy of one joule into ergs.	2
6.	Draw the following graphs for an object projected upward with a velocity v_0, which comes back to the same point after some time: (i) Acceleration versus time graph. (ii) Velocity versus time graph	2
	SECTION C	
7.	(i) Derive $v^2 - u^2 = 2as$ by graphically. (ii) A car moving along a straight highway with speed of 126 kmph is brought to a stop within a distance of 200m. What is the retardation of the car (assumed uniform) and how long does it take for the car to stop?	3
8.	A planet moves around the sun in a nearly circular orbit. Its period of revolution T depends upon: (i) radius r of orbit (ii) mass M of the sun and (iii) the gravitational constant G. Show dimensionally that $T^2 \alpha r^3$.	3
	END OF THE QUESTION PAPER	