SAMAGRA PLUS

FIRST TERM SAMPLE PRACTICE PAPER

PHYSICS

Time :1½ hours **STD: 9** **Score :40**

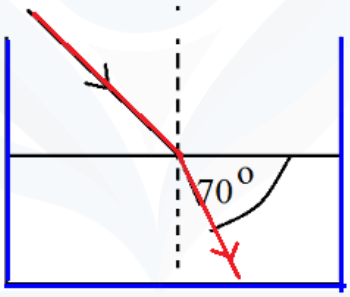
- First minute is comfort time. At this time read and understand the questions carefully
- Write down the answer according to the instructions
- Write down the answer considering the score of the question and time

(Answer any three questions from 1 to 4 . One score each)

1. A table is pushed towards West by a force of 150 N and pulled from the East by a force of 200 N. The resultant force acting on the table is -------

(200 N, 150 N, 50 N, 350 N)

2. Observe the figure. What is the angle of refraction in the figure?



3. In which case are the values of displacement and distance travelled equal?

4. Which is the correct picture regarding refraction?

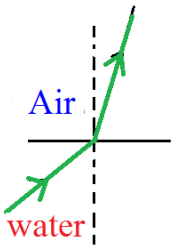


fig A

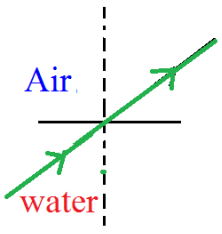


fig B

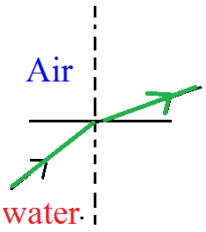


fig C

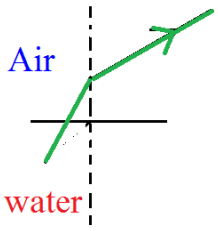


fig D

(Answer any seven questions from 5 to 13 . Two score each)

5. a) In Galileo's marble and channel experiment, what caused the ball to reach its maximum height?
   b) What causes the ball to come to rest after rising to some height?

6. What is the acceleration of an object which was travelling with a velocity of 3 m/s if its velocity changes to 4m/s in 2s?

7. What causes the bottom of a pond to appear raised when viewed from a distance?

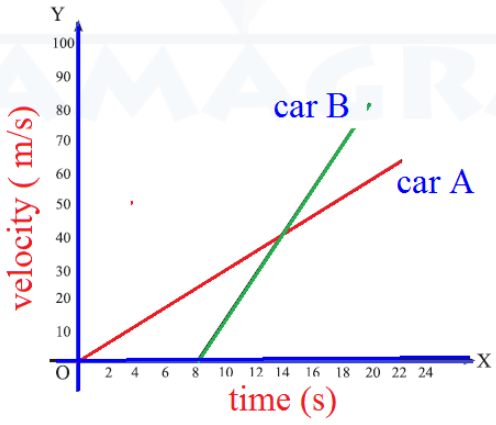
8. What is meant by resultant force?

   If a force of 100 N is applied to an object in one direction and a force of 350 N in the opposite direction, calculate the resultant force.

9. Give reason, Even after the Sun has disappeared from the horizon, it is still possible to see the Sun for a short time thereafter.

10. If the speed of light in vacuum is 3x108 m/s and the refractive index of glass is 1.5, calculate the speed of light in the glass.

11. Given is the velocity- time graph for the motion of cars A and B.



   a) How much time did it take each of the two cars to reach the same velocity?
   b) Which car has greater acceleration?

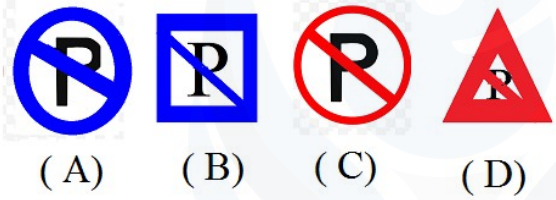
12. When an object is thrown vertically upwards with a given velocity, it reached a maximum height of 80 m. With what velocity was the object thrown up from the floor? (a = -10 m/s2)

13. Water seems to be logged in on roads during hot summer afternoons, when viewed from a distance. Explain how this phenomenon occurs.

Answer any five questions from 14 to 19 . Three score each

14. a) State Newton's first law of motion.
b) Which quantities can this law define?

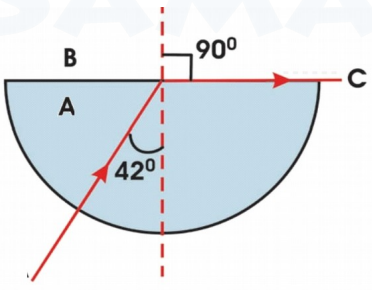
15. a) Which of the following is the correct figure?



(A) (B) (C) (D)

b) What type of sign is this?
(Mandatory, Cautionary, Informative)
c) What does it indicate?

16. a) Among A and B, which is of higher optical density?



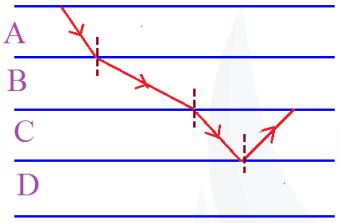
b) If the angle of incidence at A is 45o, what will be the path of the light ray?
c) When the angle of refraction is 90o, by what name is the angle of refraction known as ?

17. a) Classify the following as uniform velocity and nonuniform velocity
i) Train leaving a station

ii) Fan switched off
iii) Light traveling through the same medium
iv) freely falling coconut

b) An object moves in a circular path with constant speed.Does this object have uniform or no uniform velocity? What is the reason?

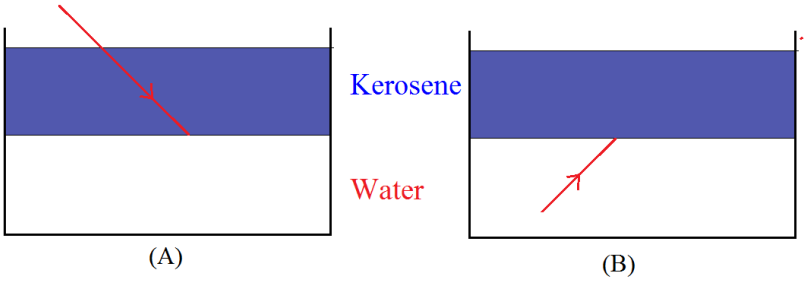
18. Observe the figure.
A, B, C and D are four types of transparent mediums. Observe the path of light



a) Of A and B, which is the medium of lower optical density?

b) What would be the reasons for light returning to the same medium instead of passing from C to D?

19. Observe the figure



(Refractive index of water is 1.33 and relative density is 1. Refractive index of kerosene is 1.44 and relative density is 0.8)

a) Which medium has the higher optical density?

b) Of the figures A and B in which figure is total internal reflection likely to occur? Justify your answer.

(Answer any two questions from 20 to 22 . Four score each)

20.a) The data regarding the motion of an object is given. Draw the velocity – time graph..

Time(s)	0	1	2	3	4	5	6	7	8	9	10
Velocity (m/s)	0	10	20	30	40	40	40	30	20	10	0

b) At which occasion is there a deceleration?

c) What is the displacement of the object during the time interval from 0 to 6 s?

21. Observe the table

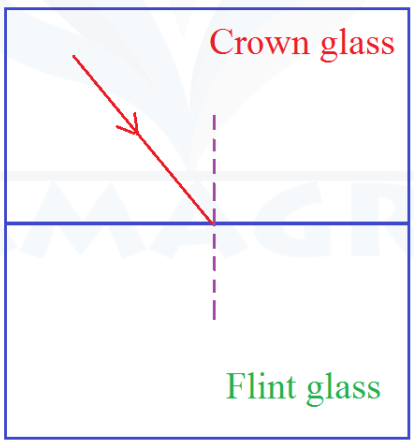
Medium	Refractive index
Crown glass	1.52
Glycerine	1.47
Sunflower oil	1.47
Water	1.33
Flint glass	1.62

a) In which of the following mediums given in the table is the speed of light least?

b) In which pair of mediums will the light ray pass without deviation even if falls obliquely from one to the other?

c) In which pair of mediums will the light ray have maximum deviation when the light ray passes from one medium to the other?

d) Observe the path of light falling obliquely from the crown glass to the flint glass. Copy the figure and complete it by drawing the refracted ray.



22) A stone is thrown vertically up with a velocity 30 m/s.
(a = -10 m/s2)

a) Find the time taken by the stone to reach the maximum height.
b) Find the height reached by it in this time.
c) At what height from the grund will the stone be at the 4th second?

Qn No	VALUE POINT	Score per point	Total Score
1	50 N	1	1
2	20^{o}	1	1
3	When object travels along a straight line in the same direction.	½ ½	1
4	Fi g C	1	1
5	a) Inertia b) Friction	1 1	2
6	0.5 m/s^2 a = (v – u) /t only 1	2	2
7	Rays of light reflected from the bottom refracts at the surface of separation of air and water Deviates away from the normal Appears to come from a higher level	1 ½ ½	2
8	Definition Effective force 250 N	1 1	2
9	Rays of light undergo successive refraction in air The rays appear to come from a higher point	1 1	2
10	2 $X10^8$ m/s n = c/v only ½ substitution 1	2	2
11	A 14 s B 6 s Car B	½ ½ 1	2
12	$v^2 = u^2 + 2as$ $0^2 = u^2 + 2 \times -10 \times 80$ u = 40 m/s	½ 1 ½	2
13	Mirage Road is hot Hot air on the surface of road and cold air above Total internal reflection	4 x ½	2
14	Statement of the first law Force Inertia	2 ½ ½	3
15	a) C b) Mandatory	3 x1	3

	c) No parking		
16	a) A b) Total internal reflection happens c) Critical angle	3 x1	3
17	a) Uniform velocity iii Non uniform velocity i, ii, iv b) Non uniform Direction continuously changes	½ x 4 ½ x 2	3
18	a) B b) C is optically denser than D c) Angle of incidence is greater than the Critical angle	3 x1	3
19	a) Kerosene b) A Total internal reflection occurs only when a ray of light enters from an optically denser medium to rarer	1 1 1	3
20	a) Drawing the graph properly b) 6^{th} second to 10^{th} second c) 160 m	2 1 1	4
21	a) Flint glass b) Glycerin and sunflower oil c) Water, flint glass d) Completing the figure	4 x1	4
22	v = u + at t = 3 s $s = ut + ½ at^2$ s = 45 m height from the ground = 40 m	½ 1 ½ 1 1	4