



FUSCO'S SCHOOL (ICSE)

Indiranagar, Bangalore

Half Yearly Examination 2016-17

Subject : PHYSICS

Class: IX

Marks:80

SECTION-A

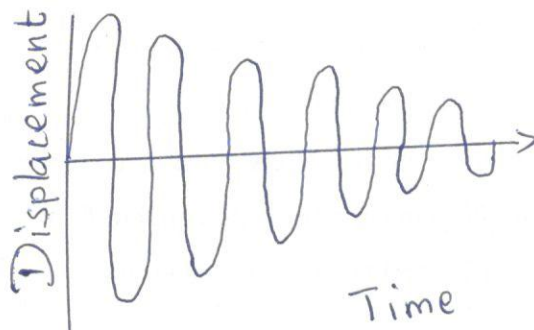
Instruction: Attempt all the questions

- I. a) State Newtons second law of motion. [2]
b) Draw a graph showing the relationship between acceleration and mass for a constant force [2]
c) Name the S.I unit of i) linear momentum ii) Rate change of momentum. [2]
d) Name the device used for measuring i) mass ii) weight [2]
e) If m is the mass of the body v its velocity and p the momentum then write a relationship between change in momentum, mass and velocity of a body when
i) v is almost equal to c , the velocity of light ii) v is very very less as compared to c , the velocity of light [2]
- II a) State the energy changes in an oscillating pendulum. [2]
b) Complete the following [2]
i) Mass \times change in velocity = \times time interval
ii) The mass of a body remains constant till the velocity of body is [2]
c) Define 1 kgf. How is it related to newton. [2]
d) A ball is hanging by a string from the ceiling of the roof. Draw a neat labelled diagram showing the forces acting on the ball and the string. [2]
e) The separation between two masses reduced to half. How is the magnitude of gravitational force between them affected [2]
- III. a) i) 1J =calorie ii) 1kwh =J [2]
b) When a body is moving in a circular path, how much work is done by the body? Give reason. [2]
c) Explain the motion of a planet around the sun in a circular path. [2]
d) what should be the gear ratio of a car : equal to 1, greater than 1, while
i) gaining speed on the road ii) ascending a hill? [2]
e) You are given four pulleys and three strings. Draw a neat and labelled diagram to use them so as to obtain a maximum mechanical advantage equal to 8. In your diagram mark the directions of the load, effort and tension in each strand. [2]

- IV) a) State two ways of increasing the frequency of vibrations of a stretched string. [2]
 b) i) Draw a graph between displacement and time for a body executing free vibrations.
 ii) Where can a body execute free vibrations. [2]
 c) i) State the safe limit of sound level in terms of decibel for human hearing.
 ii) Name the characteristic of sound in relation to its waveform. [2]
 d) i) What are mechanical waves?
 ii) Name one property of that donot change when the wave passes from one medium to another [2]
 e) When resonance takes place, a loud sound is heard. Why does this happen? Explain. [2]

SECTION -B

- V) a) i) Suggest one way ,in each case , by which we can detect the presence of infrared radiations and ultraviolet radiations.
 ii) Give one use of ultraviolet radiation [3]
 b) i) The algebraic sum of moment of force is.....
 ii) In a beam balance when the beam is balanced in a horizontal position, it is inequilibrium.
 iii) The moon revolving around the earth is inequilibrium [3]
 c) i) Two waves of the same pitch have their amplitudes in the ratio 2:3. What will be the ratio of their loudness and the ratio of their frequencies.
 ii) State two ways in which Resonance differs from Forced vibration. [4]
- VI. a) i) Define the term momentum
 ii) How is force related to the momentum of a body ?
 iii) State the condition when the change in momentum of a body depends only in the change in its velocity [3]
 b) i) Define one newton
 ii) Write the relationship between SI unit and CGS unit of force [3]
 c) The diagram below shows the displacement- time graph for a vibrating body.



i) Name the type of vibration produced by the vibrating body. ii) Give one example of a body producing such vibrations.

iii) Why is the amplitude of the wave gradually decreasing? iv) What will happen to the vibrations of the body after some time? [4]

VII)a) Define i) work ii) power iii) energy [3]

b) i) How is work done related to the applied force?

ii) From the ground floor, a man comes up to the fourth floor of a building using the staircase, another person comes up to the same floor using an elevator. Neglecting friction, compare the work done in the two cases. [3]

C. i) Why does the sun appear red at sunrise?

ii) A truck driver starts off with his loaded truck. What are the major changes that take place in setting the truck into motion? [4]

VIII)a) What are damped vibrations? How do they differ from free vibration? Give one example of each. [3]

b) How do you tune your radio set to a particular station? Name the phenomenon involved in doing so and define it. [3]

C. i) A person is tuning his radio set to a particular station. What is the person trying to do to tune it?

ii) Name the phenomenon involved in tuning the radio set.

iii) Define the phenomenon named by you in part (ii) [4]
