

MARTHOMA RESIDENTIAL SCHOOL, TIRUVALLA

ANNUAL EXAMINATION FEB 2018-19

CLASS IX

PHYSICS

MARKS:80

TIME:2HOURS

SECTION A (Answer all questions)

QUESTION 1

- a. (i) What do you understand by the term least count of an instrument?
(ii) Give the least count of a screw gauge (2)
- b. (i) Give the derived units of the following quantities
1)Force 2)Pressure
(ii) What are magnet field lines? (2)
- c. (i) List any 2 uses of electromagnet
(ii)Name the material used for making electromagnet (2)
- d. State and explain the working principle of a hydraulic press. (2)
- e. (i) What are the factors affecting pressure at a point inside a
Confined liquid
(ii) The wall of a dam is made thicker at the bottom. Why? (2)

QUESTION 2

- a. (i) State one factor on which the magnitude of a non contact
force depends.
(ii) How does it depends on the factor stated by you? (2)
- b. How is the gravitational force between two masses affected
if the distance of separation between them is
(i) doubled (ii) reduced to half? (2)
- c. (i) Define inertia.
(ii) A person falls down when he moves out from a moving bus.
Explain. (2)
- d. (i) It is easier to lift a heavy stone under water than in air. Give reason
(ii) State Archemede's principle (2)
- e. How does the density of the material of a body determine
whether it will sink or float in water? (2)

QUESTION 3

- a. (i) What is the SI unit of heat?
(ii) How is it related to calories? (2)
- b. Define (i) energy degradation (ii) thermal expansion (2)
- c. (i) What is anomalous expansion of water?
(ii) Give a consequence of this property (2)
- d. Define the following terms related to spherical mirrors (2)
(i) Radius of curvature (ii) Principal axis
- e. State the kind of mirror used by (2)
(i) Dentist (ii) In search light reflector

QUESTION 4

- a. (i) How wavelength, wave velocity and frequency of a sound wave related? (2)
(ii) Flash of lightning reaches us earlier than the sound of thunder. Give reason.
- b. Explain the effect of temperature and humidity on the speed of sound through air. (2)
- c. State any two applications of ultrasounds. (2)
- d. (i) Name the device used to measure the magnitude of electric current in a circuit. (2)
(ii) How is it connected in a circuit? (2)
- e. (i) State Ohm's law (2)
(ii) A current of 0.2A flows through a wire of resistance 15Ω . Find the potential difference across the ends of the wire. (2)

SECTION B (Answer any 4 questions)

QUESTION 5

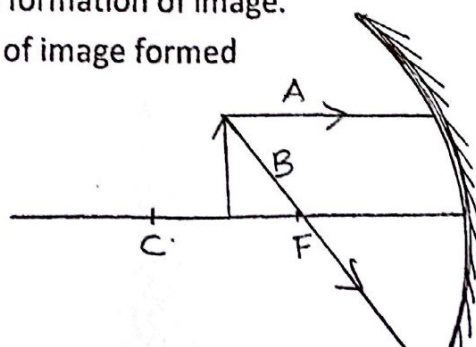
- a. (i) Differentiate between scalar and vector quantities
(ii) Select the scalars and vectors from the following:
Velocity, distance, mass, work
- b. (i) Define acceleration. Give its SI unit (3)
(ii) A train moving with uniform speed covers a distance of 120m in 2s.
Calculate (i) The speed of the train
(ii) The time it will take to cover 240m. (3)
- c. (i) State Newton's third law of motion
(ii) Give an application
(iii) Athletes often land on sand or foam after high jump. Why?
(iv) How are g and G related? (4)

QUESTION 6

- a. (i) List the factors affecting upthrust.
(ii) Explain the cause of upthrust. (3)
- b. (i) A piece of wax floats on brine. What fraction of its volume is immersed?
Density of wax = 0.95g/cm^3
Density of brine = 1.1g/cm^3
(ii) How is the CGS and SI unit of density related? (3)
- c. (i) State the principle of floatation.
(ii) Differentiate between density and relative density
(iii) An iron nail sinks in water while a ship floats. Why? (4)

QUESTION 7

- a. (i) What is global warming?
(ii) List any 3 impacts of global warming on the life on earth (4)
- b. (i) The magnification of a mirror is -3 . How are u and v related?
(ii) It is easier for a man to swim in sea water than in fresh water.
Give reason (3)
- c. Copy the given ray diagram and complete the path of rays A and B and thereby show the formation of image.
Give the characteristics of image formed (3)



QUESTION 8

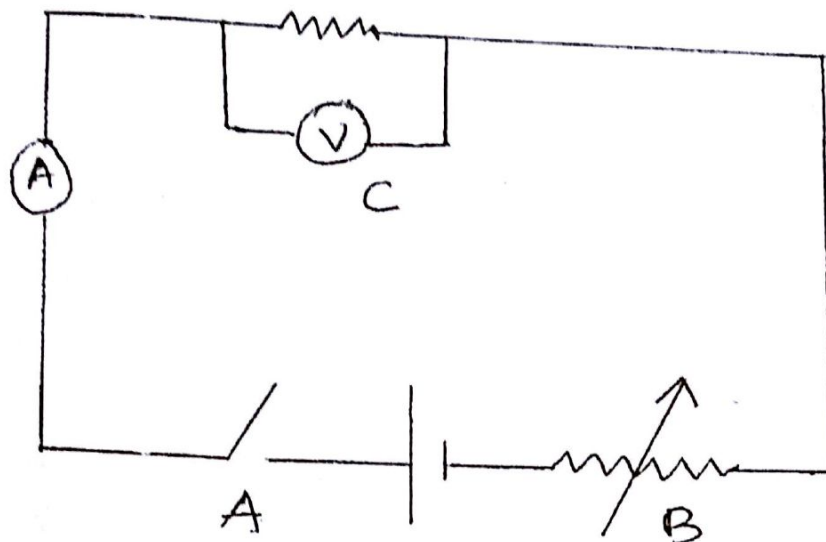
- a. (i) What are longitudinal waves?
- (i) In which medium (solid/ liquid/ gas) can it be produced?
- (iii) State 2 properties of ultra sounds that makes it useful for us (4)
- b. (i) Draw a displacement-time graph and show on it the amplitude and time period of a sound wave
- (ii) How is frequency of a wave related to its time period? (3)
- c. (i) Define the term amplitude of a wave
- (ii) The separation between 2 consecutive crests in a transverse wave is 100m. If the wave velocity is 20m/s, find the frequency of the wave. And hence calculate its time period. (3)

QUESTION 9

- a. List any 4 differences between primary and secondary cells (4)
- b. (i) Give the condition for an electric circuit to be closed
- (ii) Name the physical quantities of which the units are
1)volt 2)coulomb 3)ohm 4)ampere (3)
- c. (i) Name one dc source and one ac source
- (ii) Define electric current
- (iii) Give any 2 sub multiple units of electric current (3)

QUESTION 10

- a. (i) Identify the electrical components labelled A, B and C



- (ii) What is responsible for the flow of current through a
1) Metallic wire 2) an electrolyte (4)
- b. (i) State Newton's 2nd law of motion
(ii) How much force is required to produce an acceleration of 2m/s^2 on a body of mass 0.8kg ?
(iii) How the SI and CGS units of force related (3)
- c. (i) What is focus of a concave mirror?
(ii) A convex mirror forms the image of an object placed at a distance of 40cm in front of the mirror, at a distance of 10cm . Find the focal length of the mirror. (3)