



CLASS 10 ICSE

SUBJECT:PHYSICS

FULL MARKS: 80

TIME: 2 HOURS

Candidates are allowed additional 15 minutes for only reading paper. They must not start writing during this time. The intended marks for questions are given in the brackets [].

SECTION - A

[Attempt all questions]

[15 X 1 = 15]

Question 1

Choose the correct answers to the questions from the given options.

i) To open a door the handle is attached to it at longest distance from pivot. By doing so -

- a) Maximum force is required to open the door.
- b) Minimum force is required to open the door.
- c) It is easy to open.
- d) None of these.

ii) Which of the following is not a unit of energy?

- a) Kilowatt hour
- b) Electron volt
- c) Calorie
- d) Horse-power

iii) For greater efficiency of block and tackle system which of the following is true?

- a) Lower block should be heavy
- b) Lower block should be light
- c) Lower block should be as light as possible
- d) Lower block should have same weight as upper block

- b) It is good conductor but has low specific heat capacity.
- c) It is a poor conductor but has high specific heat capacity.
- d) It is a poor conductor but has low specific heat capacity.

xiv) Radius of a conductor is doubled keeping its length same then its resistance will become:

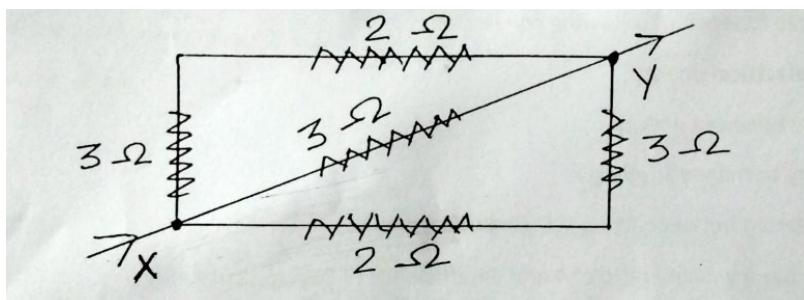
- a) Four times of original
- b) Double of original
- c) One-fourth of original
- d) Half of the original

xv) During the decay of beta particles from a radioactive element, the product formed is:

- a) Isotopes
- b) Isotones
- c) isobars
- d) None

Question 2

- a) State two factors on which moment of force about a point depend. [2]
- b) What kind of motions a wheel running on a road has? [2]
- c) A light mass and a heavy mass have equal momentum. Which will have more kinetic energy? Explain. [2]
- d) An object of mass 50 gm is thrown upwards with velocity 20 m/s. What will be its potential energy at highest point [2]
- e) Name a machine which can be used to: [2]
 - i) Multiply force
 - ii) Change the direction of force
- f) Calculate the resistance between the points X and Y in the network shown:



[2]

- g) Write three differences between total internal reflection and reflection from a plane mirror. [3]

Question 3

- a) What is focal length? What is necessary condition for first focal length and second focal length to be same. [2]
- b) An electromagnetic wave has a frequency of 500 MHz and a wavelength of 60 cm. [2]
- i) Calculate the speed of the wave.
- ii) Name the medium through which it is travelling.
- c) Write full form of: [2]
- i) SONAR ii) RADAR
- d) A wire is stretched to double its length. What happens to its: [2]
- i) Resistance ii) Resistivity
- e) Write two advantages of MCB over the normal fuse. [2]

SECTION - B

[Attempt any four questions]

Question 4

- a)i) State two conditions for a body acted upon by several forces, to be in equilibrium. [3]
- ii) Define S.I. unit of moment of force. [3]
- b)i) Force is applied on an object but no work is done. What are possible conditions:
- ii) Establish the relation between S.I and C.G.S units of work. [3]
- c) How much work is needed to be done on a ball of mass 50g to give it a momentum of 5 Kg ms⁻¹? Write the work done in Joule and kWh. [4]

Question 5

- a) Give one example for each of following conversions: [3]
- i) Heat energy to electrical energy. ii) Electrical energy to sound energy.
- iii) Electrical energy to magnetic energy
- b) Establish the relation between M.A., V.R. and efficiency. [3]

c) A pulley system has a velocity ratio of 4 and an efficiency of 90%. Calculate:

i) The mechanical advantage of the system.

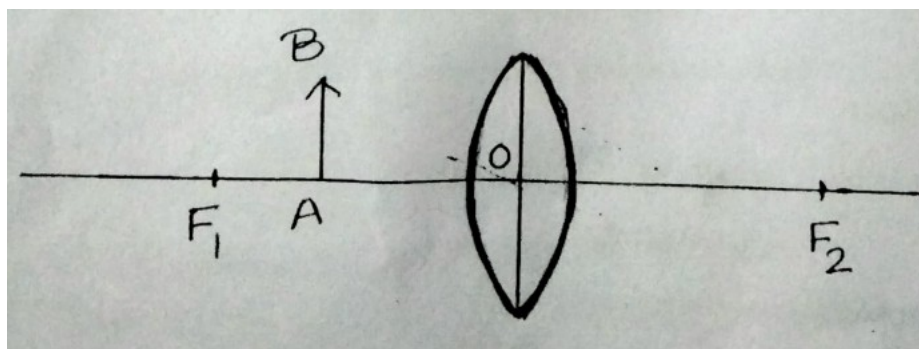
ii) The effort required to raise a load of 300N by the system.

Question 6

a)i) State the two laws of refraction. [3]

ii) Why does a pencil appear bent when kept in water?

b) Complete the diagram given below to show the formation of image and write three characteristics of image. [3]



c) A concave lens has focal length of 30 cm. Find the position and magnification(m) of the image for an object placed in front of it at a distance of 30 cm. State whether the image is real or virtual. [4]

Question 7

a) Write the three special properties which makes the ultrasonic waves suitable for a wide variety of uses. [3]

b)i) State Ohm's law. [3]

ii) Write two examples of each Ohmic resistors and Non Ohmic-resistors.

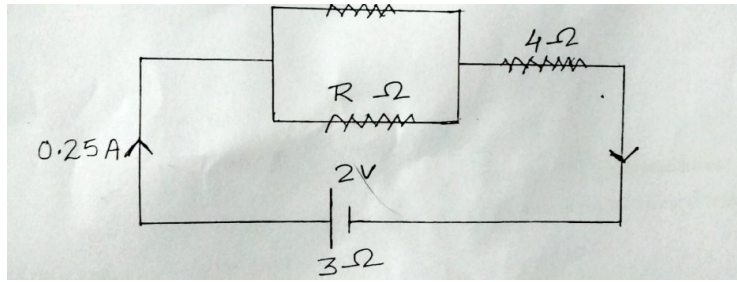
c) From the circuit diagram given below find: [4]

i) The p.d. across the 40 resistor.

ii) The p.d. across the internal resistance of cell.

iii) The p.d. across the R or 20 resistor, and

iv) The value of R.



Question 8

a) State with reason in a d.c. motor, the effect of: [3]

i) Increasing the area of the coil,

iii) Increasing the strength of current in the coil. 42 AAAA

b)i) What is a transformer? On what principle does it work? [3]

ii) Write the factors upon which magnitude of emf induced in the secondary coil depend.

c)i) State the term specific latent heat. [4]

ii) Calculate the power of an electric heater required to melt 1kg of ice at 0°C in 30s if the efficiency of heater is 40%. Take specific latent heat of ice = 336 J^{-1}

Question 9

a) What do you mean by the term local earthing? Explain with labelled diagram. [3]

b)i) What is cause of resistance? ii) Write two differences between resistance and specific resistance. [3]

c)i) Write two differences between nuclear fission and nuclear fusion.

ii) Calculate the amount of energy released in MeV due to a loss of mass of 2Kg. [4]