

ST. STEPHEN'S COLLEGE BAJJA

PHYSICS

SECTION B

25. An object is placed in front of a mirror and an inverted image, same size as the object is formed on the screen placed 15cm from the mirror.

a) State with a reason the type of mirror used. (2mks)

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b) Draw a ray diagram to show the object and its image. (2mks)

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26. a) What is meant by uniform acceleration. (1mk)

b) The graph below shows the motion of the body.

Describe the motion of the body. (3mks)

27. a) What is meant by;

i. centre of gravity? (1mk)

ii. moment of force? (1mk)

b) The figure below shows a uniform rod of length 4m pivoted 1.0m from one end. If the weight of the rod is 120N, find the force F which keeps the rod horizontal. (2mks)

28.

A metal can with three holes A, B and C is filled with water as shown above.

a) Show on the diagram the initial paths taken by water out of the holes. (1½ mks)

b) Explain what happens after some time. (2½ mks)

29. a) What is acrysal. (1mk)

b) A potassium permanagnate crystal is carefully placed at the bottom of a beaker containing clear water as shown above.

- Explain what is observed after some time. (3mks)
30. a) Define the coulomb as a unit of charge. (1mk)
- b) A charge of 180C flows through a lamp for 2 minutes. Find the electric current flowing through the lamp. (2mks)
- c) What is the use of a voltmeter in an electric circuit? (1mk)

SECTION C

31. a) Define the following;
- i. Joule (1mk)
 - ii. Power (1mk)
- b) A water pump can raise 0.2m² of water in 20 seconds. Calculate the power of the pump if the water is raised through 25m. (3mks)
- c) (i) Define pressure. (1mk)
- (ii) Describe an experiment to demonstrate the existence of surface tension. (5mks)
- d) (i) State two factors on which friction in solids depends. (1mk)
- (ii) State two reasons why friction should be increased in some cases. (1mk)
- e) (i) Define capilarity. (1mk)
- (ii) State two applications of capillarity. (2mks)
32. a) (i) Define electrical resistance (1mk)
- (ii) State three physical properties that affect the resistance of a metal wire. (3mks)
- b) Draw sketch graphs for current against pd for the following; (2mks)
- i. a metal wire
 - ii. a semi conductor diode
- d) A battery of emf 3.0V and negligible internal resistance is connected across three resistors as shown below.
- Calculate the;
- i. Current in the circuit (4mks)
 - ii. Current through the 2Ω resistor (3mks)
- e) Explain why a wire heats up when a current is passed through it. (3mks)
33. a) (i) Define refractive index of a material. (1mk)

(ii) Describe an experiment you would use to measure the refractive index of a glass using a glass block. (7mks)

b) With the aid of a diagram, explain why a pond appears shallower than actually it is. (2mks)

c) A ray of light travelling from glass to air is refracted along the boundary as shown below.

If the refractive index of glass is 1.52, find angle C. (2mks)

d) (i) With the aid of diagram, describe how a pin hole camera works. (2mks)

(ii) State the nature of the images formed by a pin hole camera. (2mks)

End

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