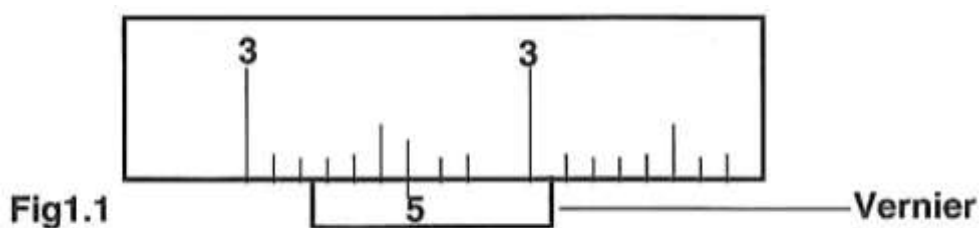


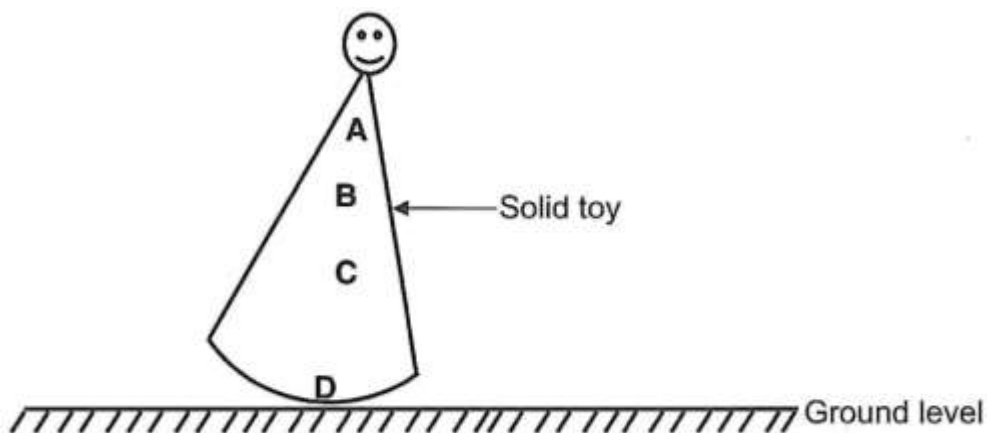
YEAR; 2004 PAPER 1: 24 November 2004

1. Figure 1.1 shows part of a vernier calliper used to measure the width of a rectangular glass block.



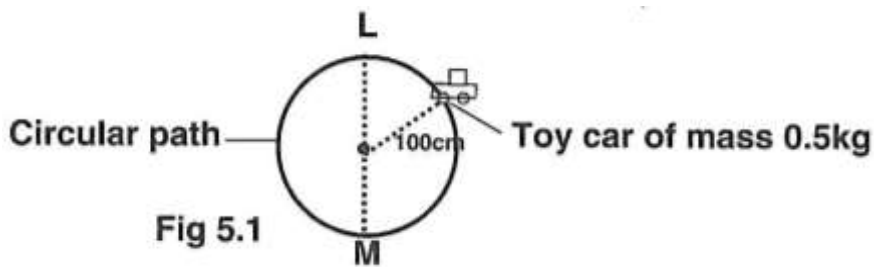
The correct reading is...

- A. 31.4mm
 - B. 32.4mm .
 - C. 32.5cm
 - D. 32.6mm
2. A train accelerates uniformly from rest at 0.2m/s^2 over a distance of 1km. The final velocity is...
- A. 0.2m/s
 - B. 2.0m/s
 - C. 20m/s
 - D. 200m/s
3. The diagram shows a solid toy resting **on** the ground.



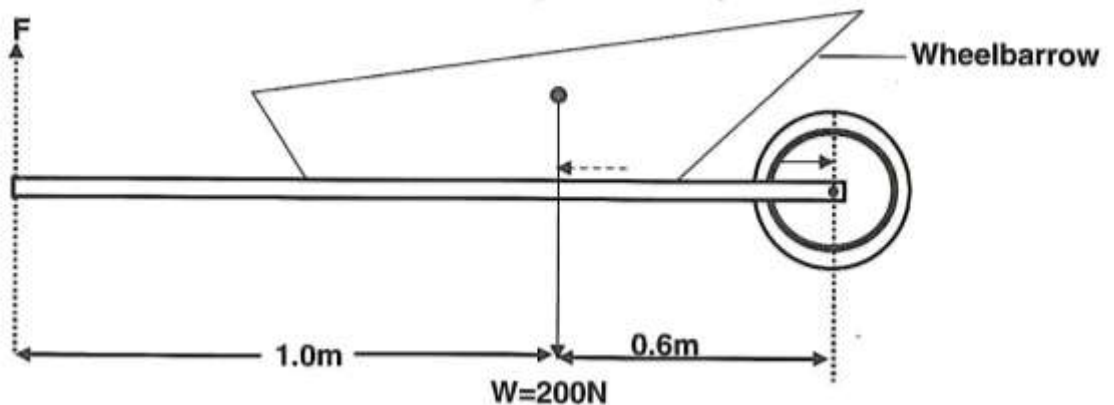
At which of the four points A,B,C or D, should the weight of the solid toy be concentrated so that it does not topple over easily?

4. What is the volume of a block of expanded polystyrene of mass 40Gg and density 18kg/m³?
- A. 0.025m³
 B. 0.205m³
 C. 2.5m³
 D. 0.0025m³
5. A toy car of mass 0.5kg is swung in a vertical circular path on the end of a string of length 100cm so that It moves with a constant speed of 5m/s.



Which of the following statements is false about the motion of the toy car?

- A. The tension in the string is greater at L than at M.
 B. The net force on the car is constant in magnitude.
 C. If the string breaks, the body will move radially outwards
 D. The net force on the body is always directed towards the centre of the circle.
6. Figure below shows a wheelbarrow being used to carry a load.



What is the value of the force, F?

- A. 0.75N
 B. 7.5N
 C. 75N

D. 750N

7. Fig. 7.1 below shows a block being pulled from the ground using two pulleys.

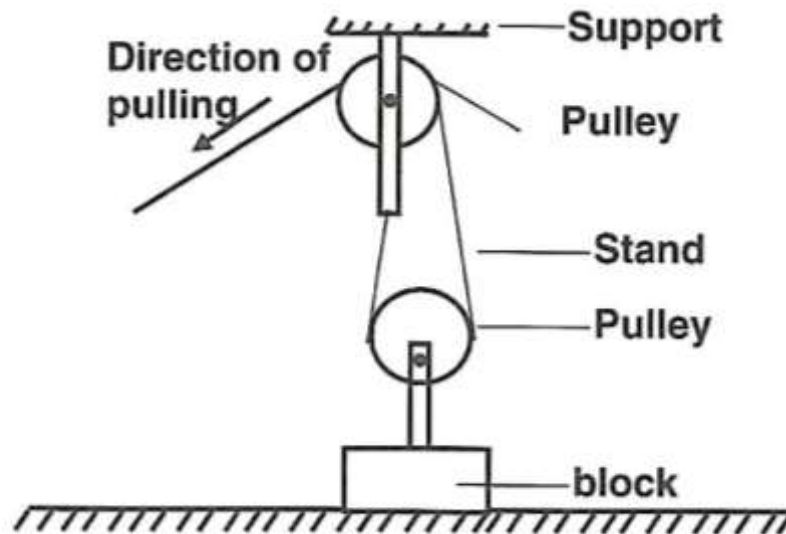


Fig. 7.1

What is the mechanical advantage of the pulley system?

- A. 0
- B. 1
- C. 2
- D. 3

7. In Fig.8.1 below a ball of mass 2kg rolls from point A through B to C and then back to A.

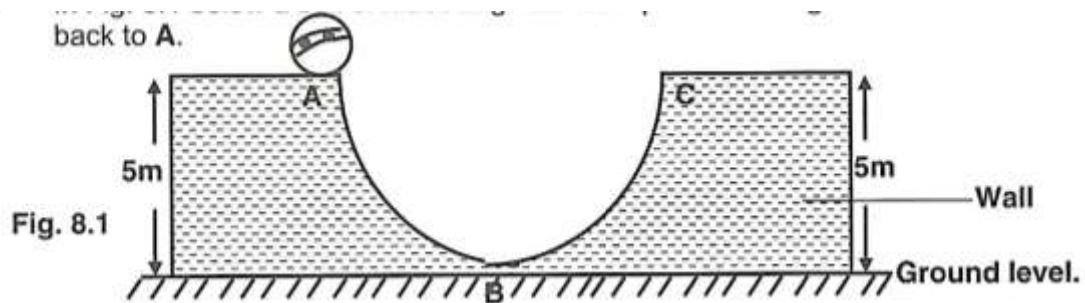


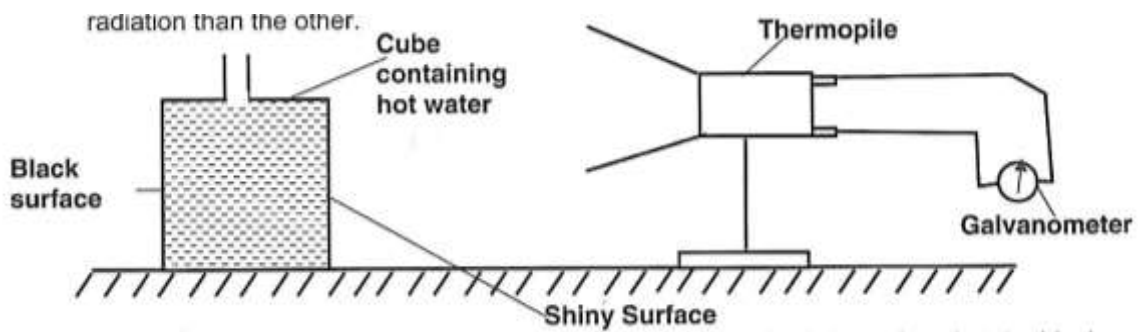
Fig. 8.1

What is the greatest velocity attained by the ball during its motion? (Ignore friction and take the *value* of g to be 10N/kg)

- A. 5m/s
- B. 10m/s
- C. 20m/s
- D. 100m/s

8. Why does a hot air balloon rise up in the air?

- A. The air Inside is hot and dense •
 - B. The air expands and becomes less dense.
 - C. The air contracts and becomes less dense.'
 - D. The air inside is cold and less dense.
9. A student arranges an experiment to find out which surface is a better emitter or infra-red radiation than the other.



What observation is made on the galvanometer when the cube is turned so that the black surface now faces the thermopile? The galvanometer...

- A. needle deflects
 - B. needle deflects more.
 - C. needle deflects less.
 - D. needle does not deflect
10. A wave has a frequency of 4 Hz and a wavelength of 200cm. What are the speed and the period of the wave?

	SPEED	PERIOD
A	0.8m/s	0.2Ss
B	8m/s	0.25s
C	8Q0m/s	0.0025s
D	8Q0m/s	8s

11. One side of the main bedroom has a modem clock while the opposite side had a large dressing mirror. A child enters this room and sees the image of the dock in the mirror as shown below.

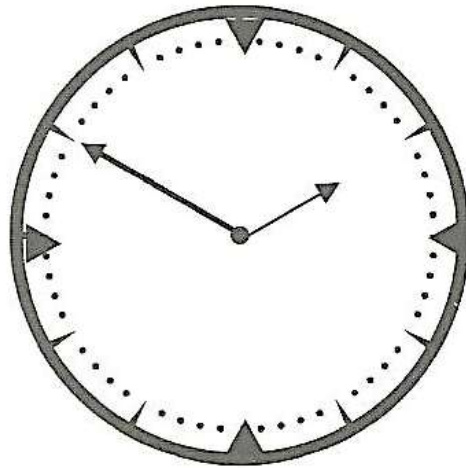
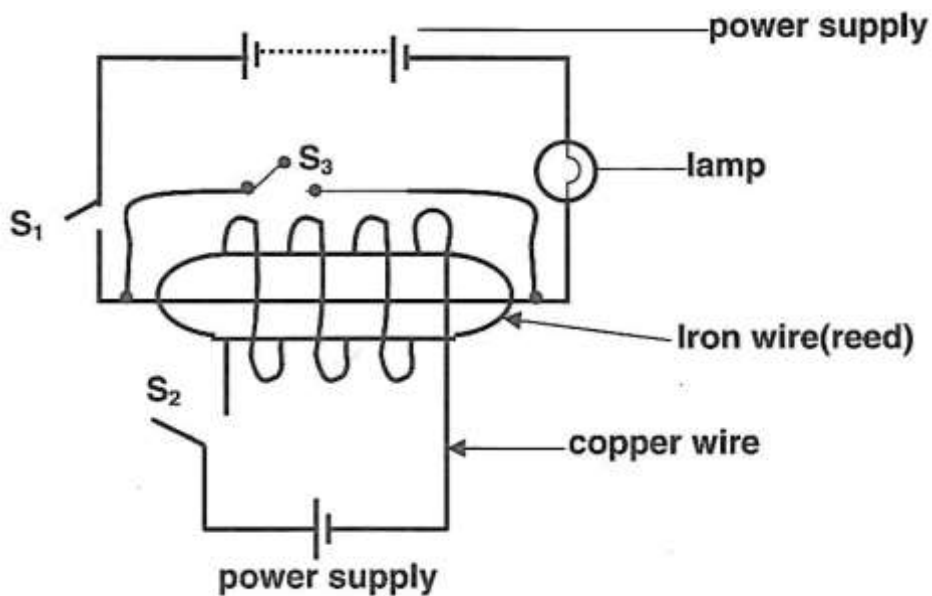


Fig. 12.1

What is the correct time shown by the actual dock?

- A. 10:10 **hours**
- B. 11:10 hours
- C. 13:50 hours
- D. 14:50 hours

12. A circuit is arranged as shown below; S_1 , S_2 and S_3 are switches.



In order for the lamp to produce light...

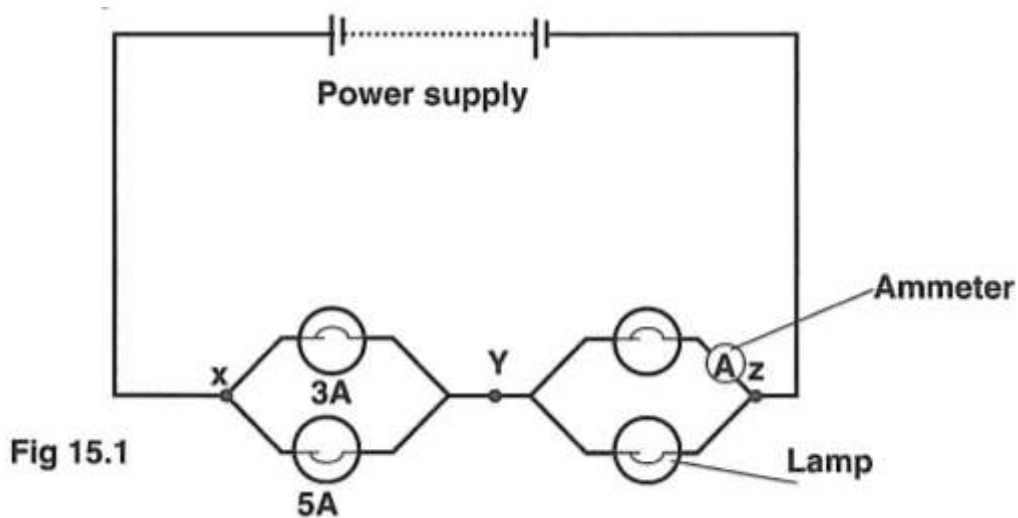
- A. S_1 and S_2 should be ON while S_3 should be OFF.
- B. S_1 and S_3 should be ON white S_i should be OFF.
- C. S_1 should be ON white S_2 and S_3 should be OFF.

D. the reed should be made of copper,

13. A battery drives 60C of charge in a circuit for 20 S. The current in the circuit is...

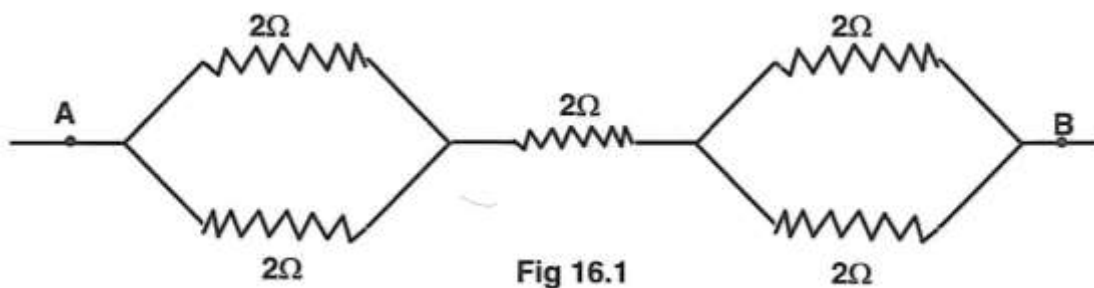
- A. 0.03A
- B. 3A
- C. 3A
- D. 300A

14. Fig 15.1 below shows a circuit with three junctions X, Y and Z and four lamps between junction Y and Z are identical.



What current is flowing through the ammeter?

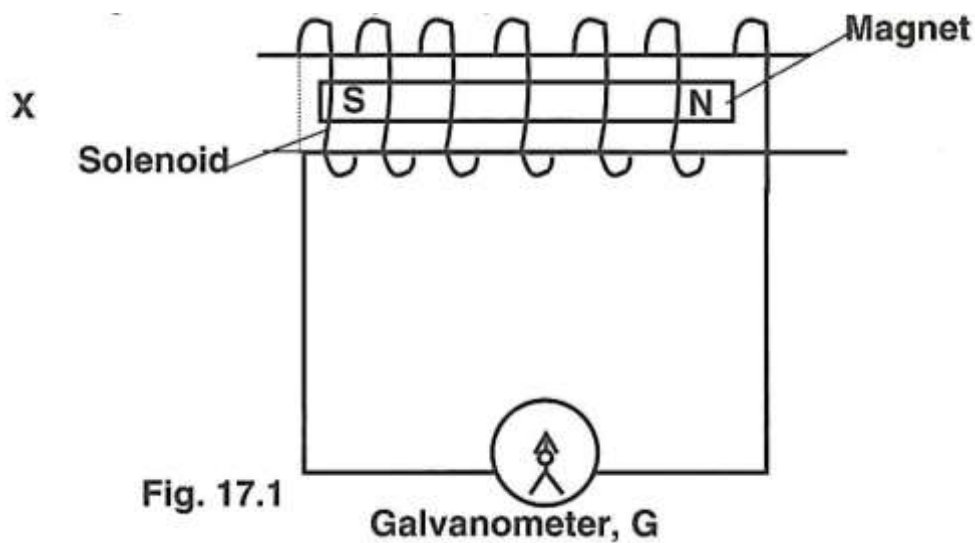
- A. 4A towards Y
 - B. 3A towards Z
 - C. 4A towards Z
 - D. 5A towards Z
15. In the circuit below the potential difference (p.d) between A and B is 4V.



The current in the circuit is...

- A. 0.4A
- B. 1.0A
- C. 2.0A
- D. 2.5A

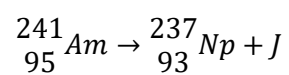
16. Fig.17.1 below shows a solenoid connected to a sensitive galvanometer G. The needle of the galvanometer is pointing at zero.



From the diagram above we can deduce that...

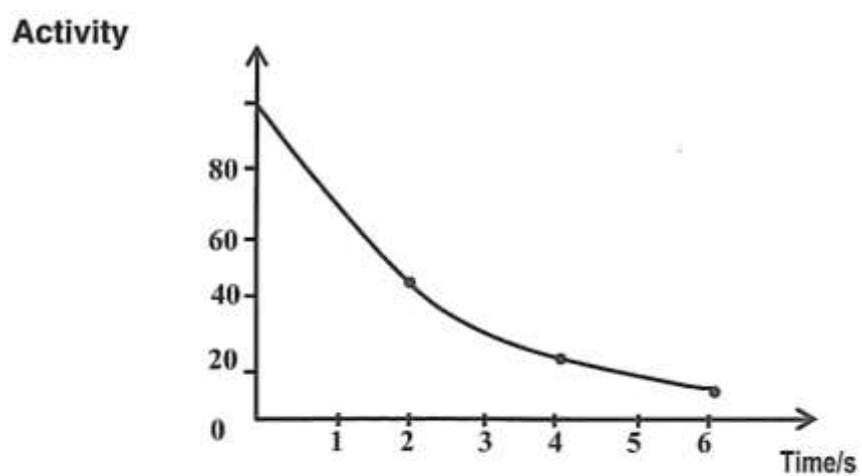
- A. the magnet is moving towards X
 - B. the magnet is moving towards Y.
 - C. the magnet is stationary.
 - D. the solenoid is made of copper.
18. The gain control of a Cathode Ray Oscilloscope (CRO) is set at 0.3 v/cm. If the horizontal trace is deflected upwards by 0.3cm, what is the unknown voltage applied to the Y-input of the Cathode Ray Oscilloscope?
- A. 0V.
 - B. 0.6.V
 - C. 0.9V
 - D. 1.0V

19. The following equation represents the decay of Ameridium-241.



In this equation J could be...

- A. **an** electron
 - B. an alpha particle
 - C. hydrogen gas
 - D. a proton
20. The decay curve below shows how the activity of a radioactive nuclide varies with time.



The half-life of the nuclide is

- A. 1s
- B. 2s
- C. 3s
- D. 4s