

CANDIDATES NAME:.....

INDEX NUMBER							

SIGNATURE:

**535/1
PHYSICS
PAPER 1
JUNE/JULY
2 HOURS 15 MINUTES**

MOCK EXAMINATIONS SET 1 2019
Uganda Certificate of Education

**PHYSICS
PAPER 1**

2 HOURS 15 MINUTES

INSTRUCTIONS TO CANDIDATE:

- ★ *Section A contains 40 objective type questions. You are required to write the correct answer A, B, C or D against each question in the box on the right hand side.*
- ★ *Section B contains 10 structured questions. Answers are to be written in the spaces provided on the question paper.*
- ★ *Where necessary use the following values of physical quantities.*
 - ★ Acceleration due to gravity = 10ms^{-2}
 - ★ Specific heat capacity of water = $4200\text{Jkg}^{-1}\text{K}^{-1}$
 - ★ specific heat capacity of copper = $400\text{Jkg}^{-1}\text{K}^{-1}$
 - ★ speed of sound in air = 330ms^{-1}
 - ★ specific latent heat of vaporization of water = $2.3 \times 10^6\text{Jkg}^{-1}$
 - ★ speed of sound in air = 320ms^{-1}

SECTION A: (40 MARKS)

- 4.

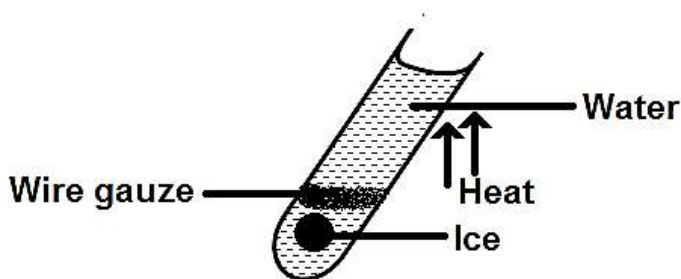


Figure 1.

5. What type of motion is shown by the ticker tape in Figure 2?



Figure 2.

7. A dull block surface feels hotter even though it's at the same temperature as a shiny surface because it:
- A. has more heat energy than shiny surface.
 - B. emits more heat than shiny surface.
 - C. reflects more heat than shiny surface
 - D. conducts heat more.

☐

8. An object is dropped from a chopper and hits the ground after 4 seconds. At what height was it dropped?
- A. 20m B. 40m C. 50m D. 80m

☐

9. In an electric field, a neutral point is a point where;
- A. electric field lines intersect
 - B. no electric force is experienced
 - C. maximum electric force is experienced
 - D. field lines start from

☐

10. A vibrator produces waves which travel a distance of 30m in 2 seconds and the distance between two successive crests is 5cm. Calculate the frequency of the waves.
- A. 350Hz B. 320Hz C. 300Hz D. 150Hz

☐

11. The resistance of a metal in the form of a wire increases with;
- A. decrease in length
 - B. increase in temperature
 - C. decrease in temperature
 - D. increase in cross sectional area

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12. Figure 3 shows two equal forces acting on a bar of length L.

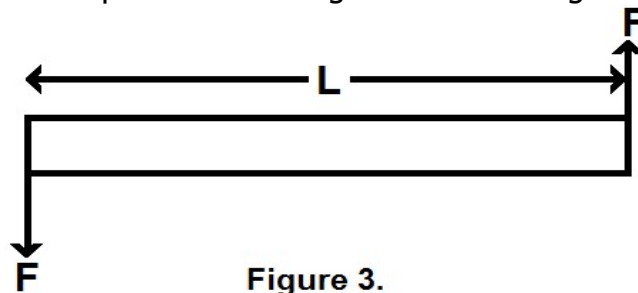


Figure 3.

Which of the following statement(s) is/are true:

- i) The resultant force on the bar is zero.
- ii) The forces cause rotational effect
- iii) The forces act in opposite directions.

☐

- A. i) only
- B. i) and ii) only
- C. i), ii) and iii)
- D. ii) and iii) only

13. The capillarity rise in a tube is due to;

- A. surface tension
- B. high vapour pressure
- C. adhesion being greater than cohesion force
- D. cohesion force being greater than adhesion force

☐

14. The sensitivity of a galvanometer can be increased by using; ☐
 A. smaller coil
 B. weaker magnet
 C. weaker hair spring
 D. fewer turns of wire on the coil.
15. Figure 4 shows a coil and magnet. The e.m.f produced in the coil is due to;

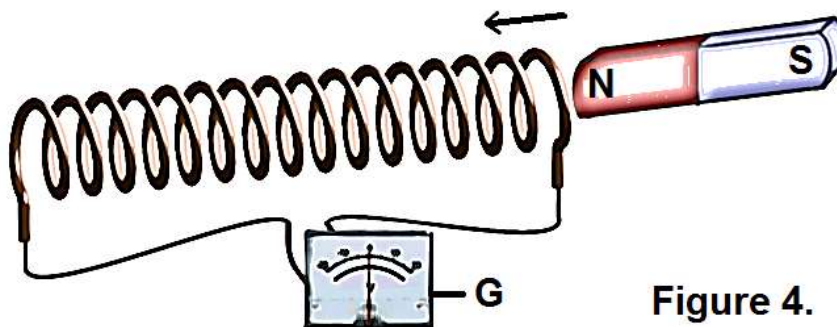


Figure 4.

- A. The attraction between the coil and magnet ☐
 B. the magnetic field outside the coil
 C. the magnet placed close to the coil
 D. the variation of magnetic field lines linking the coil
16. A possible isotopes of ${}^7_3\text{Li}$ has; ☐
 A. 2 protons and 3 neutrons
 B. 2 protons as 4 neutrons
 C. 3 protons and 5 neutrons
 D. 4 protons and 3 neutrons
17. A real image as one which; ☐
 A. is inverted and magnified
 B. is erect and magnified
 C. same size as the object
 D. can be formed on the screen
18. Figure 5 shows a simple barometer. What is the value of atmospheric pressure?

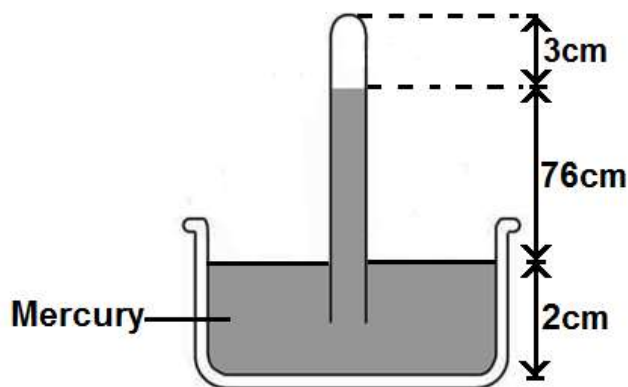
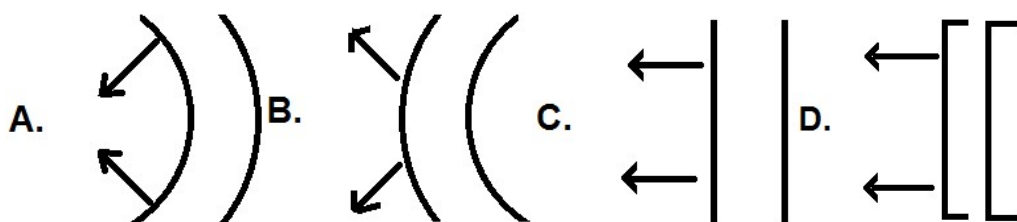


Figure 5.

- A. 76cmHg B. 74cmHg C. 78cmHg D. 79cmHg ☐
19. The brightness on the screen of a TV set is determined by; ☐
 A. darkness in the room
 B. the size of the screen
 C. the number of electrons reaching the screen
 D. the direction of the antenna.

20. Which of the following shows a pattern of a circular wave reflected from a convex reflector?


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21. Loudness of a musical note depends on:

- A. frequency B. amplitude
C. pitch D. velocity

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22. Which of the following statements is true about gases?

- A. the volume of a fixed mass of a gas increase as temperature decreases.
B. the pressure of a fixed mass of a gas decreases as temperature increases
C. each molecule of a gas at a given temperature has a different speed.
D. the average kinetic energy of molecules of a gas depends on temperature.

☐

23. A bullet of mass 0.02kg is fired with a speed of 40ms^{-1} . Calculate its kinetic energy.

- A. 0.4J B. 0.8J C. 16J D. 32J

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24. Which of the following forms mechanical energy?

- A. electrical energy and kinetic energy.
B. potential energy and nuclear energy
C. potential energy and kinetic energy
D. electrical energy and nuclear energy

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- 25.

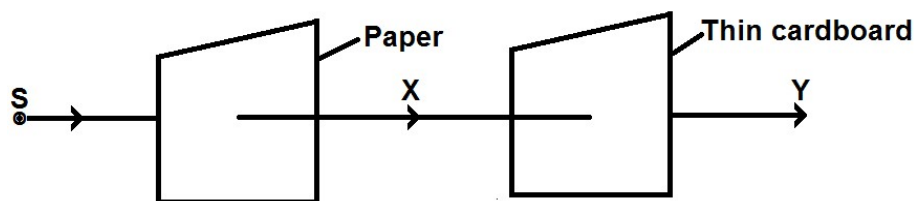


Figure 6.

In Figure 6, S is source of radioactive particles α , β and γ . The beams at X and Y will contain;

- | | X | Y |
|----|-------------------------------|-------------------------|
| A. | α , β , γ | β , γ only |
| B. | β , γ only | α - only |
| C. | β , γ only | γ - only |
| D. | α , γ only | γ - only |

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26.

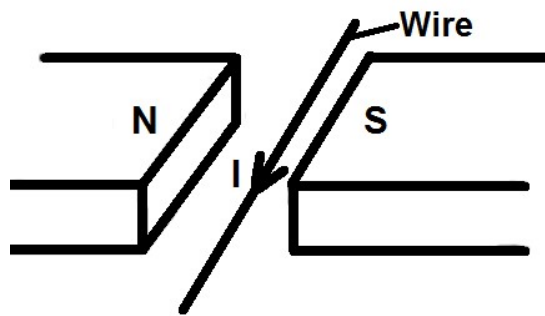


Figure 7.

When a current Z flows through a wire placed in between poles of a U – shaped magnet shown in Figure 7, the wire will move.

- A. upwards B. downwards
C. towards the South Pole D. towards the North Pole

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27. The basic difference between transverse and longitudinal waves is in;

- A. amplitude B. wavelength
C. direction of vibration D. medium through which the waves travel

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28. A block of wood of volume 40cm^3 floats in water with only half of its volume submerged. If the density of water is 1000kgm^{-3} determine the mass of the wood under water.

- A. 0.5kg B. 0.02kg C. 0.005kg D. 0.002kg

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29.

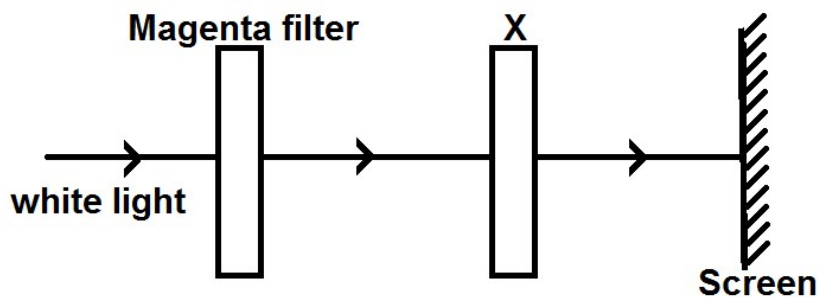


Figure 8.

Figure 8. Shows white light incident on a magenta filter. What colour filter should X be so that red is seen on the screen?

- A. cyan B. yellow C. black D. blue

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30. An electric bulb has a resistance of 960Ω . Find the electrical power expended when connected to a 240V supply.

- A. $\frac{960}{240 \times 240}$ B. $\frac{960}{240}$ C. $\frac{240}{960}$ D. $\frac{240 \times 240}{960}$

☐

39. Which of the following is not a primary source of energy? ☐
A. water B. The sun C. wind D. dry cell
40. A body accelerates uniformly from rest and acquires a velocity of 60ms^{-1} in half a minute. Find the distance covered by the body. ☐
A. 15m B. 30m C. 900m D. 1800m

SECTION B: (40 MARKS)

41. a) Define a watt. (1 mark)
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- b) A boy of mass 45kg runs up a flight of 60steps. If each step is 12cm high, Find the work done against gravity by the boy. (2 marks)
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42. a) What is a hard magnetic material? (1 mark)
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- b) State two ways in which a material can be demagnetized. (1 mark)
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- c) Sketch a field pattern between two conductor carrying current in the same direction. (2 marks)

43. a) Define the term heat capacity. (1 mark)

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b) On a certain day when the temperature is 37°C , the pressure of gas in a gas jar is 740mmHg. Calculate the pressure of the gas when it's cooled to a temperature of 17°C . (3 marks)

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44. a) State the law of conservation of energy. (1 mark)

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b) A body of mass 25kg falls freely from a height of 10m to the ground.

i) State the energy changes that take place. (1 mark)

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ii) Calculate the velocity with which it hits the ground. (2 marks)

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45. a) What is meant by the term electromotive force (e.m.f.)? (1 mark)

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- b) Figure 9 shows three resistors of 2Ω , 2Ω and 3Ω connected to source of e.m.f 20V and negligible internal resistance.

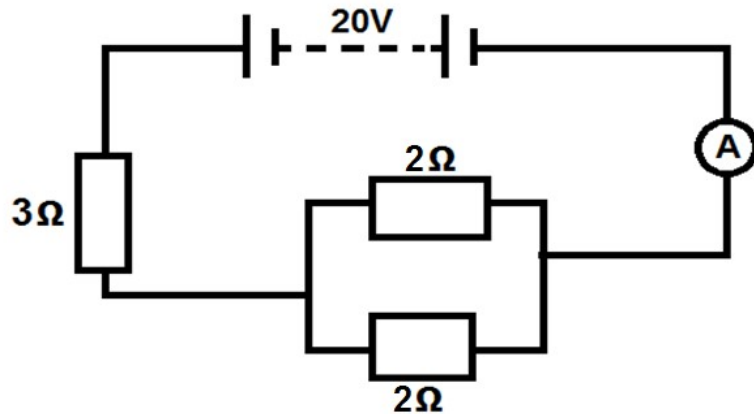


Figure 9.

Calculate the current flowing in the circuit.

(3 marks)

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46. a) What is meant by the term total internal reflection? (1 mark)

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- b) A piece of glass material has critical angle of 18° . Calculate the refractive index of glass material. (2 marks)

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- c) State any two applications of total internal reflection. (1 mark)

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47. a) Distinguish between mass and weight. (2 marks)

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- b) A body weighs 52N. It experiences an up thrust of 12N in a fluid. Find the apparent weight of the body in a fluid. (2 marks)

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48. a) What is meant by the term half – life? (1 mark)

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- b) A radioactive sample takes 50 hours for 80% of its mass to decay. Find its half – life. (2 marks)

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49. a) What is meant by the term reverberation? (1 mark)

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- b) State two factors that affect frequency of a vibrating string. (1 mark)

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- c) A sound wave of frequency 440Hz has a velocity of 330ms^{-1} . Calculate the wave length. (2 marks)

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50. a) Explain what happens when two insulators are rubbed together. (3 marks)

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- b) State two uses of a gold leaf electroscope. (2 marks)

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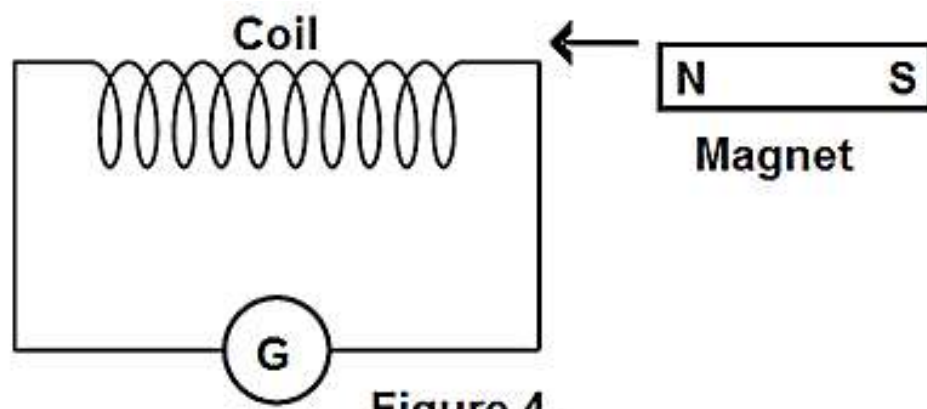


Figure 4.

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