**FORM TWO PHYSICS**

**TERM 2 2024**

**END OF TERM 2 EXAM**

**TIME: 2 HOURS**

**NAME ………………………………………………….ADM NO ………………………… CLASS ………….....**

**INSTRUCTIONS.**

***ANSWER ALL THE QUESTIONS IN THE SPACES PROVIDED***

***SECTION A***

1. Define the following terms as used on curved mirrors,

a) Principal axis (1mk)

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c) Focal plane (1mk)

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1. State the ampere’s swimming rule. (1mk)

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1. Briefly describe any two applications of stability in real life situations. (2mks)

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3. An oil drop has a volume of 0.14mm3 when it is placed on the surface of some water; it spreads out to form a circular patch of area 6.4\* 104 mm2

a) Calculate the thickness of the oil film. (2mks)

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b) What two assumptions you have made above. (1mk)

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4. By the help of a ray diagram, show how an object at infinity forms its image on a converging mirror. (2mks)

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6. Give any two factors that affect the strength of an electromagnet. (2mk)

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7. The stability of a body can be increased by increasing the base area and lowering its Centre of gravity. State one way of lowering its Centre of gravity. (1mk)

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8. Explain any two applications of concave mirrors in real life. (2mks)

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9. You are provided with two iron bars A and B one is magnetized and the other is not. Explain how you would identify the magnetized bar. (2mks)

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10. Give a reason why attraction in magnetism is not regarded as a reliable method of testing for polarity. (1mk)

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11. Draw a magnetic field pattern around a straight current carrying conductor. (2mks)

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12. A convex mirror of focal length 18 cm produces an image on its axis, 6 cm away from the mirror. Determine the position of the object. (2mks)

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13. A concave mirror has a focal length of 8cm. A real object of length 2cm is placed 12cm from the mirror. Using a suitable scale, determine the position of the image and the height of the image.

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14. Sketch a Vernier caliper showing each of the following readings

a) 6.13 cm. (2mks)

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b) 2.14 cm. (2mks)

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14. The following diagrams shows the cross-section of current carrying wires. Sketch the magnetic field around the wire

a) **Xx**(2mks)

**b) . .(2mks)**

15. State two qualities of a liquid which can be used in an experiment to determine the size of a molecule. (2mks)

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16. Determine the position of the object, if its image is formed 12 cm from a convex mirror of focal length 18 cm. (2mks)

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17. calculate the pressure due to water experienced by a fish 20 m below the surface of the sea.( density of water =1030kg/m3 ) (3mks)

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18. Explain why a small leaking laboratory gas tap in one corner of the room can be detected by a person in another corner of the room. (2mks)

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19. Briefly differentiate between magnetic and non-magnetic materials. (2mks)

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20. Why is repulsion the surest way of testing polarity of a magnet? (1mk)

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21. What is the zero error in relation to Vernier calipers? (1mk)

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22. A weight of 50N is hanging at the end of a uniform metal rod. A pivot is placed at the Centre of the rod is balanced by hanging a weight of 80N, 2 meters from the pivot. Calculate the length of the metal rod. (4mks)

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23. “Parallel forces can act in opposite direction.” Give two practical applications of this. (2mks)

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24. State the condition under which a body is said to be in mechanical equilibrium. (1mk)

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***SECTION B***

24. The following readings were obtained in an experiment to verify Hook’s law using a spring.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Force( N) | 0.5 | 1.5 | 2.5 | 3.5 | 4.0 |
| Extension (m) | 0.06 | 0.08 | 0.10 | 0.12 | 0.14 |

a) Plot a graph of force against extension. (5mks)

b) Determine the spring constant from the graph. (2mks)

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c) From your graph determine the force for extension of;

i) 0.112m (1mk)

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ii) 0.111m (1mk)

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d) State whether the spring obeys ohms law. (1mk)

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25. a) briefly explain what is meant by the following terms;

i) Centre of gravity of an object. 1mk

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ii) Equilibrium state. 1mk

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b) Explain two ways of increasing the stability of a body. 2mks

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c) Briefly describe how you would locate the Centre of gravity of a lamina 3mks

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d) Discus any three practical applications of stability. 3mks

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