NAME: ..... ADM NO: .....

SCHOOL: ..... DATE : .....

CANDIDATE'S SIGNATURE: .....

232 / 1
PHYSICS
PAPER 1
THEORY
JULY / AUGUST 2016
TIME: 2 HOURS

– 2016

FORM 3

PHYSICS
PAPER 1
TIME: 2 HOURS

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INSTRUCTIONS TO CANDIDATES:

(a) *Write your **Name, Admission Number** and **School** in the spaces provided.*
(b) ***Sign** and write the **date** of examination in the spaces provided above.*
(c) *This paper consists two sections **A** and **B**.*
(d) *Answer **all** questions in Section **A** and **B** in the spaces provided.*
(e) *All working **MUST** be clearly shown.*
(f) *Mathematical tables and electronic calculators **may be** used.*

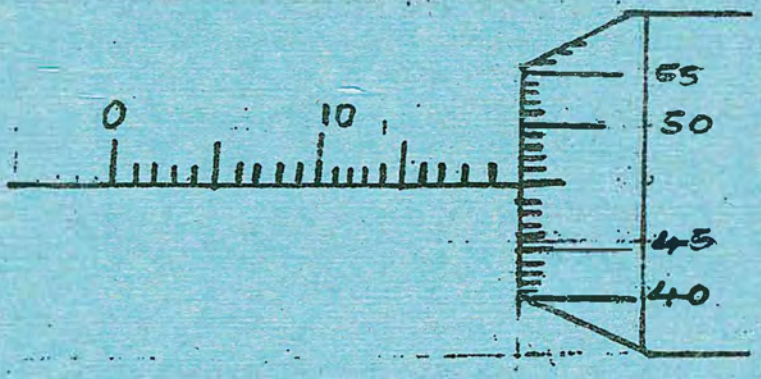
FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAX. SCORE	CANDIDATE'S. SCORE
A	1 - 11	25	
B	12 – 23	55	
TOTAL SCORE		80	

SECTION A (25 MARKS)

Answer ALL questions in this section in the spaces provided

1. What is the reading of the micrometer screw gauge in the figure below? (3mks)



2. Buses are very stable even when carrying heavy luggages. Give any two modifications for that reason. (2mks)

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3. Differentiate between Scalar and Vector quantities. (2mks)

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4. State the Principle of Moments. (2mks)

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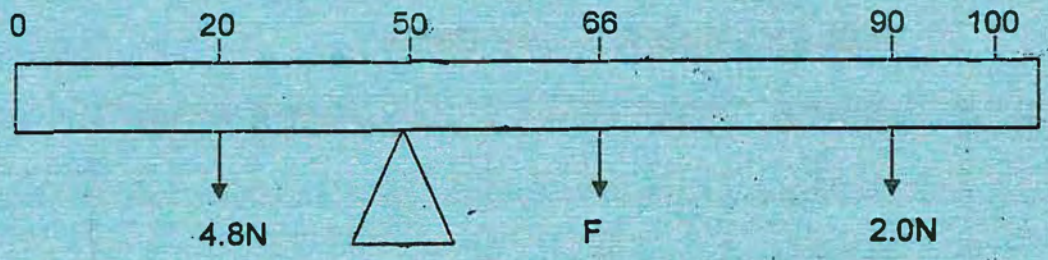
5. A uniform meter rule below pivoted at its centre is balanced by a force of 4.8N at 20cm mark and some other two forces, F and 2.0N on the 66cm and 90cm mark respectively. Calculate the force F. (4mks)



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6. (a) In an experiment to estimate the size of a molecule of olive oil, a drop of oil of volume $0.17mm^3$ was placed on a clean water surface. The oil spread into a patch of area $6.0x10^4mm^2$. Estimate the size of a molecule of olive oil. (3mks)

(b) Give **two** assumptions made from this experiment.

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7. State the Hooke's Law. (2mks)

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8. Calculate the refractive index of glass given that the velocity of light in air is $3 \times 10^8 ms^{-1}$ and velocity of light in glass is $7.4 \times 10^8 ms^{-1}$. (3mks)

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9. Name **three** factors affecting thermal conductivity. (3mks)

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10. Differentiate between Displacement and Acceleration. (2mks)

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SECTION B (55 MARKS)

Answer ALL questions in this section on the spaces provided.

11. Name **two** types of fluid flow. (2mks)

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12. A cat moving initially at 10ms-1 decelerates at 2.5m/s^2.

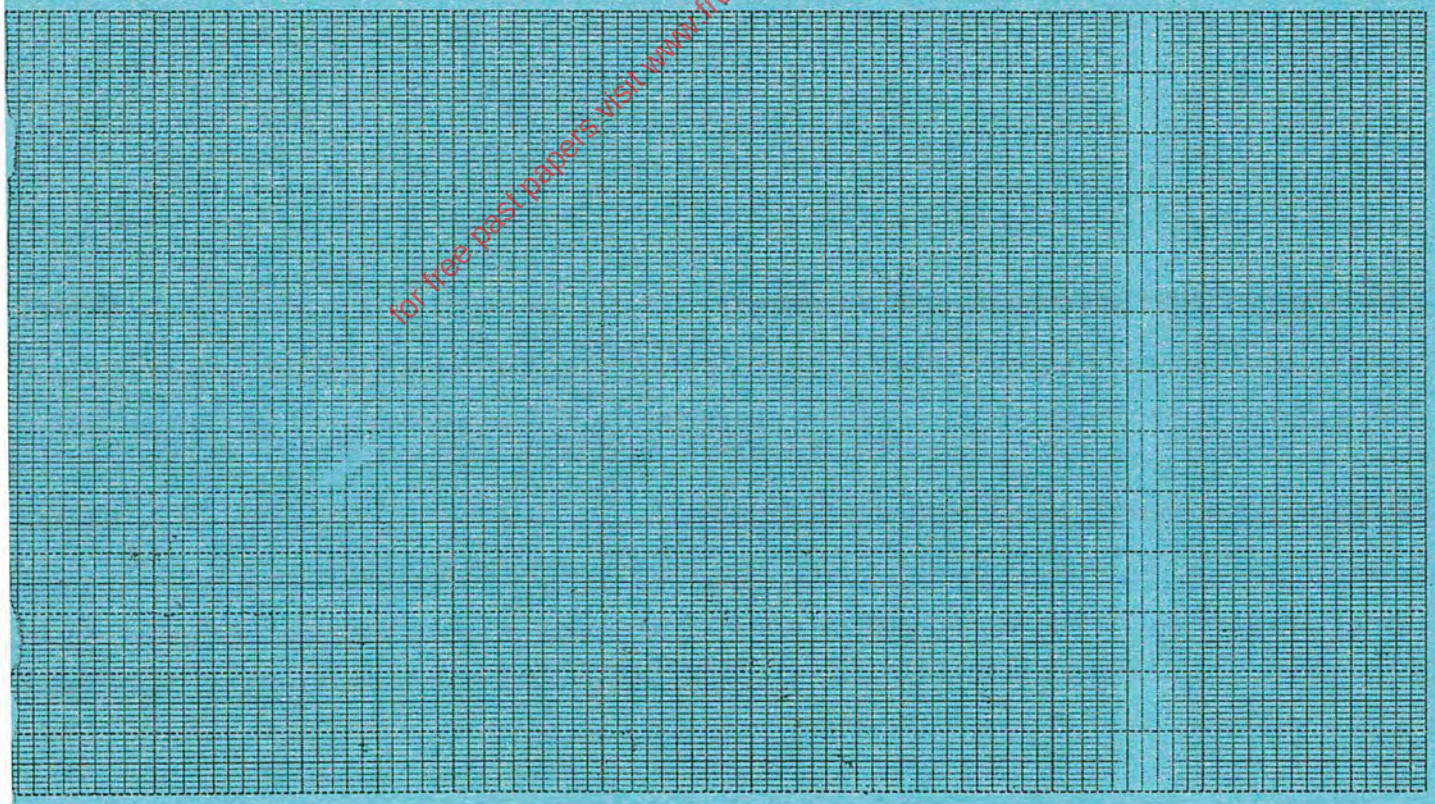
Determine:-

(a) Its velocity after 1.5 seconds. (2mks)

(b) The distance travelled. (2mks)

(c) The time taken for the car to stop. (2mks)

(d) Sketch the velocity time graph for the motion of the car up to the time the car stopped. (2mks)



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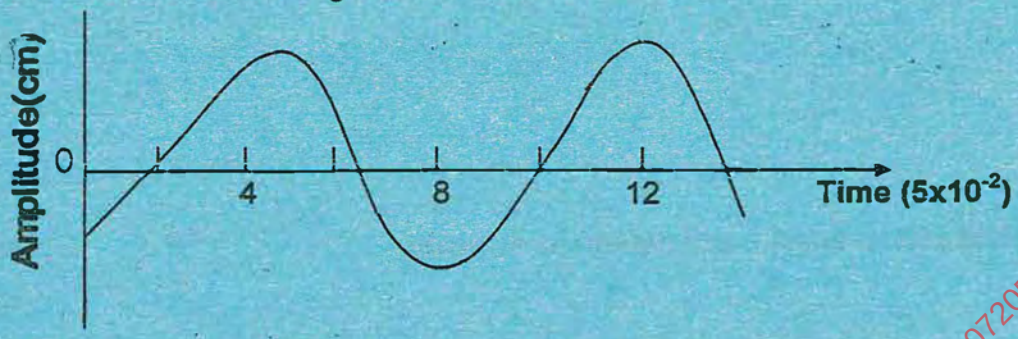
(e) From the graph, determine the distance the car traveled before stopping. (2mks)

13. Determine the wavelength of the wave. (3mks)



14. The mass of an empty density bottle is 70g, its mass when filled with water is 40.0g and 50.0g when filled with liquid X. Calculate the density of liquid X if the density of water is 1000kg/m^{-3}.

(4mks)

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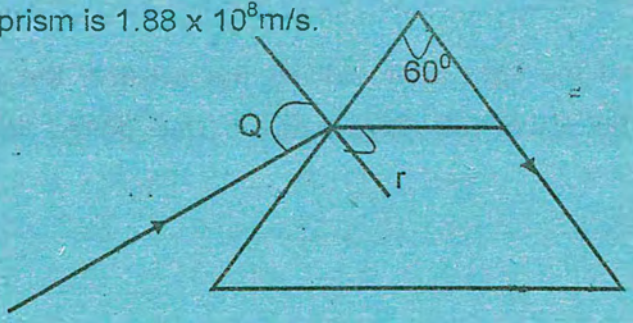
15. The figure below shows the path of a yellow light through a glass prism. The speed of yellow light in the prism is 1.88 x 10^{8}m/s.



Yellow light

(a) Determine the refraction index of the prism material for the light (speed of light in vacuum = 3.0 x $10^8 ms^{-1}$).. (2mks)

(b) Show on the figure the critical angle c and determine its value. (2mks)

(c) Given that r = 21.2^0, determine angle Q. (2mks)

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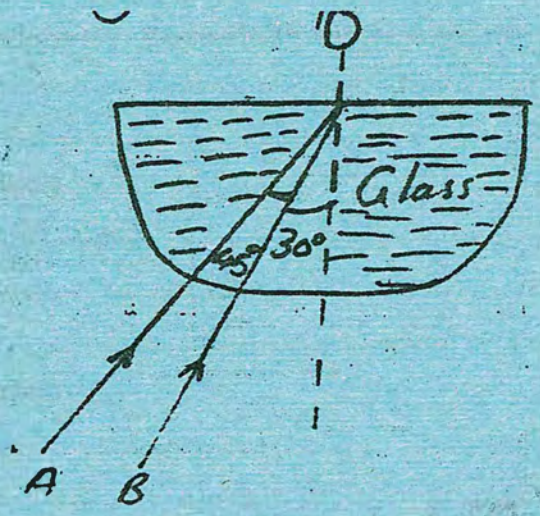
(d) On the same figure, sketch the path of the light after striking the prism if the prism was replaced by another of similar shape but lower refractive index. (Use dotted line for your answer.) (2mks)

16. The figure below shows two rays A and B entering a semi-circular glass block which has a critical angle of 42^0. The rays are incident at an air glass boundary at point O.



Complete the path of the two rays from point O label A' and B' the corresponding rays. (3mks)

17. Define the following terms:-

(i) The centre of Curvature, C. (1mk)

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(ii) The Principle Axis. (1mk)

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(iii) The Principle Focus, F. (1mk)

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(iv) The Focal Length. (1mk)

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18. Give **four** differences between Mass and Weight. (4mks)

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19. Name **four** applications of Anti-parallel forces. (4mks)

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20. Name **three** states of equilibrium. (3mks)

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21. State Bernoulli's principle. (2mks)

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22. Name **four** applications of Bernoulli's principle. (4mks)

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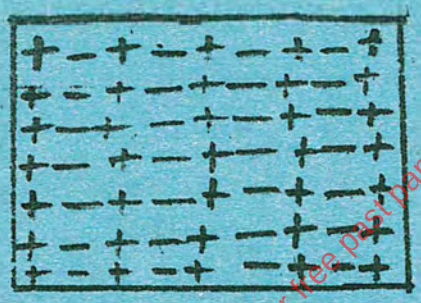
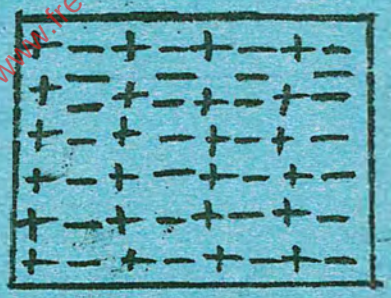
23. By the show of a diagram, show what will happen when the objects below are brought together. (3mks)





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