**PHYSICS FORM 2**

 **HOLIDAY ASSIGNMENT**

1. (a) In an experiment to estimate the diameter of an oil molecule, an oil drop of diameter 0.05 cm spreads over a circular patch whose diameter is 20 cm.

 Determine:

 (i) The volume of the oil drop. (2 marks)

 (ii) The area of the patch covered by the oil (2 marks)

 (iii) The diameter of the oil molecule (3 marks)

 (b) State

 (i) Any assumption made in (b) (iii) above (1 mark)

 (ii) Two possible sources of errors in this experiment (2 marks)

 2. Define the following terms as used in curved mirrors.

 i) Principal

 ii) Focal length (f)

 3. State ONE application of each of the following – Convex mirrors – Parabolic mirrors – Concave mirrors

4. Distinguish between a real and a virtual image

5. A boy scout wanted to light up his match stick using a curved mirror. State the type of mirror he should use and explain how?

6. Explain why a concave mirror is suitable for use as a dressing mirror.

7. Give two reasons why a convex mirror is used as a driving mirror

8. State the reason why a convex mirror is preferred over a plane mirror for use as a driving mirror.

 9. State one advantage of using parabolic reflector in a headlamp of a car.

. 10. An object of height 10cm is placed 5cm infront of concave mirror of focal length 3cm. determine:

 (i) Position of the image. (ii) Size of the image. (iii) Nature of the image formed.

11. An object is placed 15cm infront of convex mirror of focal length 10cm. Calculate the image distance

12. Calculate the moment due to the force **F** below.

**Pivot**

**F = 45N**

**80 cm**

13.A uniform meter rule pivoted at its centre is balanced by a force of **100N** at **20cm** and another force of **F** at the **75cm** mark.

 **50cm**

**100N**

**F**

 **75cm**

 **20cm**

**0**

**100cm**

1. Calculate the force **F.**
2. What is the reaction at the pivot?
3. Three forces are applied on a meter-ruler as shown.

**50cm**

**72N**

**F**

**90cm**

**70cm**

**0**

**100cm**

**30N**

1. Calculate the force **F.**
2. What is the reaction at the pivot?

The figure below shows three forces applied on a uniform metal rod of length **20m**.

**0**

**10m**

**90N**

**240N**

**16m**

**X**

 **2m**

**20m**

**300N**

Calculate the position **X** where the force of **240N** is placed**.**