

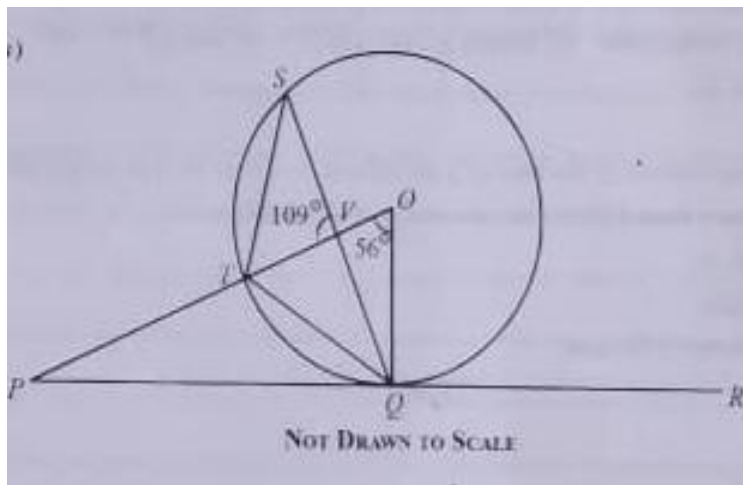
SS2

BIOLOGY

1. Write about the following, extensively;
 - I. floral parts of a flower
 - II. Pollination in flowers
 - III. Types of ovaries in plants and placentation

(Note; the assignment is to be printed and bound. Not more than 10 pages and use font size 12, times new roman fonts. You are required to show diagrams/pictures of flowers and floral parts.

MATHEMATICS



1 (a) In the diagram \overline{PR} is a tangent to the circle centre O at Q $\angle POQ = 56^\circ$ and \overline{PO} intersects \overline{SQ} at V such that $\angle SVP = 109^\circ$, calculate :

(i) $\angle TQP$

(ii) $\angle QTS$

2. The vertices of $\triangle PQR$ are $P(-3,8)$, $Q(4,3)$ and $R(1,2)$. Find the equation of the lines:

- i. PQ
- ii. QR

FURTHER MATHEMATICS

1. State and explain five (5) rules of differentiation with examples.
 - b. Derive the derivative of $f(x) = x^3 - 4x^2 + 5x - 7$ using the power rule.
2. A ball is thrown vertically upward, and its height (in meters) after t seconds is given by; $h(t) = -16t^2 + 64t + 3$.
 - a. Find the velocity of the ball.
 - b. Determine the acceleration of the ball.
 - c. Determine the time when the ball reaches its maximum height.

CHEMISTRY

1. In the preparation of dry chlorine gas, state the:
 - i. Reagents used
 - ii. Drying agents used
 - iii. The mode of collection
 - iv. Draw and label a diagram for the preparation of a dry sample of chlorine in the laboratory
 2. (a) name two gases that can be used to perform the fountain experiment
 - ii. what is the aim of the fountain experiment?
- (b) ZnO is an amphoteric oxide.
Write equations to illustrate this statement.

PHYSICS

1. a. State two reasons why simple harmonic motion is periodic.
 - b. With the aid of mathematical equation(s) state two factors that affect the period of oscillation.
 - c. Sketch a graph of the total mechanical energy, E , against displacement, y , for the motion of a simple pendulum from one extreme position to the other.