

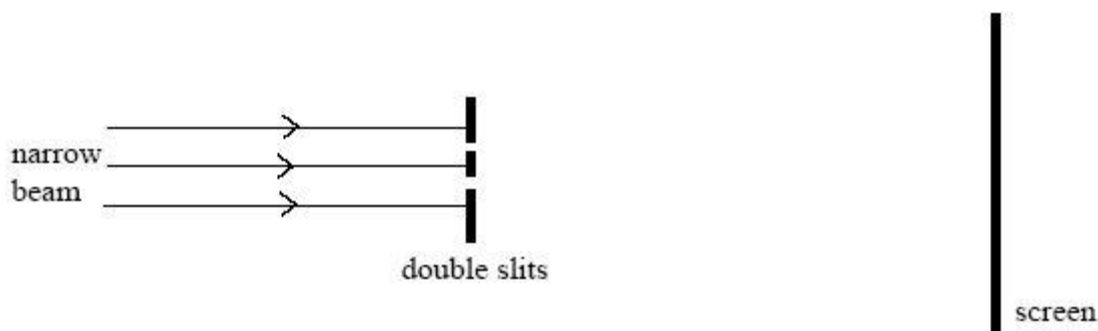
Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

A narrow beam of monochromatic red light is directed at a double slit arrangement. Parallel red and dark fringes are seen on the screen shown in the diagram above.



- (a) (i) Light passing through each slit spreads out. What is the name for this effect?

(1)

- (ii) Explain the formation of the fringes seen on the screen.

(4)

- (iii) The slit spacing was 0.56 mm. The distance across 4 fringe spacings was 3.6 mm when the screen was at a distance of 0.80 m from the slits. Calculate the wavelength of the red light.

Answer _____ m

(4)

- (b) Describe how the appearance of the fringes would differ if white light had been used instead of red light.

(3)

(Total 12 marks)

Q2.

- (a) State the characteristic features of

- (i) longitudinal waves,

- (ii) transverse waves.

(3)

- (b) Daylight passes horizontally through a fixed polarising filter **P**. An observer views the light emerging through a second polarising filter **Q**, which may be rotated in a vertical plane about point **X** as shown in **Figure 1**.

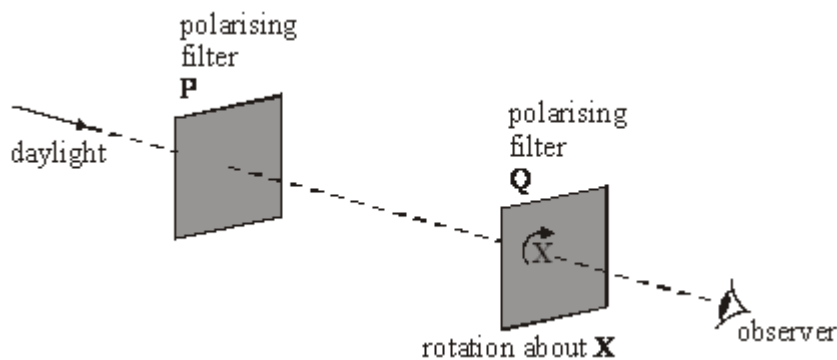


Figure 1

Describe what the observer would see as **Q** is rotated slowly through 360° .

You may be awarded marks for the quality of written communication provided in your answer.

(2)
(Total 5 marks)