

Unit 13 - Week 11

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Assignment 11

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-16, 23:59 IST.

1) If the polarising angle of a piece of glass for green light is 54.74° , then the angle of minimum deviation for an equilateral prism made of same glass is (given $\tan 54.74^\circ = 1.414$)

1 point

- (a) 45°
- (b) 54.74°
- (c) 60°
- (d) 30°

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

2) When unpolarised beam of light is incident on a glass slab, the reflected beam is found to be completely plane polarised. The angle between the reflected beam and the transmitted beam is

1 point

- (a) 45°
- (b) 50°
- (c) 60°
- (d) 90°

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

3) When unpolarised light proceeding through air is incident at an angle of 60° on a transparent slab, the reflected rays are found to be completely plane polarised. The refractive index of the slab and the angle of refraction into the slab are respectively

1 point

- (a) 1.7, 30°
- (b) 1.414, 40°
- (c) 1.5, 30°
- (d) 1.732, 30°

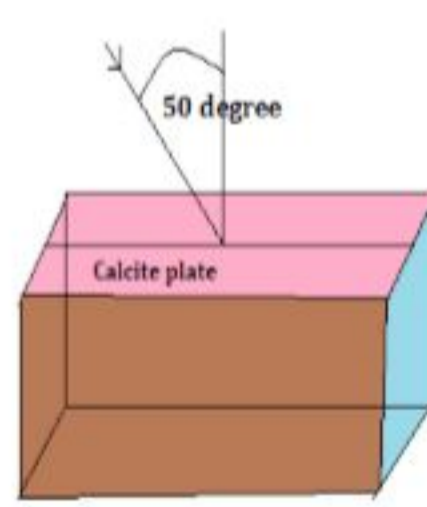
- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

4) Unpolarised light is incident on a calcite plate as shown in figure below. Take refractive indices for ordinary and extraordinary rays are 1.6584 and 1.4864 respectively. The angular separation (in degree) between the two emerging rays within the crystal is

1 point



- (a) 3.512°
- (b) 1.254°
- (c) 2.75°
- (d) 4.133°

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

5) A zone plate with radius 0.39 mm of the first zone is mounted on an optical bench 42 cm from a pin hole illuminated by green light of wavelength 5461 \AA . Find the distance of the primary image.

1 point

- (a) 65.4 cm
- (b) 82.7 cm
- (c) 55.9 cm
- (d) 32.5 cm

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

6) Calculate the radius (approx) of the central disc of a zone plate which has primary focal length of 10 cm when used with light of wavelength 5500 \AA .

1 point

- (a) 0.135 mm
- (b) 0.205 mm
- (c) 0.325 mm
- (d) 0.235 mm

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

7) A monochromatic light of wavelength 6000 \AA falls normally on a diffraction grating 2 cm wide. The first order spectrum is produced at an angle of 17.4576° from the normal. What is the total number of lines on the grating?

1 point

- (a) 1000
- (b) 10000
- (c) 8000
- (d) 6000

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

8) Calculate the polarizing angle for light travelling from water of refractive index 1.33 to glass of refractive index 1.65.

1 point

- (a) 51.13°
- (b) 49.05°
- (c) 47.35°
- (d) 38.22°

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

9) The rotation of plane of polarization ($\lambda = 5400 \text{ \AA}$) in a certain substance is 10° per cm. Calculate the difference between the refractive indices for right and left circularly polarised beams in the substance.

1 point

- (a) 2.5×10^{-6}
- (b) 1.5×10^{-5}
- (c) 3×10^{-6}
- (d) 3.5×10^{-4}

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
c

10) A 16 cm length of 5% solution causes an optical rotation of 30° . How much length of 20% solution of the same substance will cause a rotation of 45° ?

1 point

- (a) 6 cm
- (b) 10 cm
- (c) 18 cm
- (d) 24 cm

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a