

PYQSide

NEET RAY OPTICS AND OPTICAL INSTRUMENTS — TELESCOPES (REFRACTING AND REFLECTING) — PYQS

Max. Marks: 32

Questions: 8

Section A (MCQ)

Q.1 A small telescope has an objective of focal length 140 cm and an eye piece of focal length 5.0 cm. The magnifying power of telescope for viewing a distant object is: [NEET (UG) 2024]

- (1) 34 (2) 28 (3) 17 (4) 32

Scan or tap for the full solution 

Q.2 An astronomical refracting telescope is being used by an observer to observe planets in normal adjustment. The focal lengths of the objective and eye piece used in the construction of the telescope are 20 m and 2 cm respectively. Consider the following statements about the telescope :

The correct statements are :

- A. The distance between the objective and eye piece is 20.02 m
B. The magnification of the telescope is $(-)$ 1000
C. The image of the planet is erect and diminished
D. The aperture of eye piece is smaller than that of objective [NEET (UG) 2022 (Phase 2)]

- (1) A, B and D only (2) A, B and C only
(3) B, C and D only (4) C, D and A only

Scan or tap for the full solution 

Q.3 A lens of large focal length and large aperture is best suited as an objective of an astronomical telescope since : [NEET (UG) 2021]

- (1) a large aperture contributes to the quality and visibility of the images.
(2) a large area of the objective ensures better light gathering power.
(3) a large aperture provides a better resolution.
(4) All the above.

Scan or tap for the full solution 

Q.4 An astronomical refracting telescope will have large angular magnification and high angular resolution, when it has an objective lens of

[NEET 2018]

- (1) small focal length and large diameter
(2) large focal length and small diameter
(3) large focal length and large diameter
(4) small focal length and small diameter

Scan or tap for the full solution 

Q.5 An astronomical telescope has objective and eyepiece of focal lengths 40 cm and 4 cm respectively. To view an object 200 cm away from the objective, the lenses must be separated by a distance [NEET 2016 (Phase 1)]

- (1) 50.0 cm (2) 54.0 cm (3) 37.3 cm (4) 46.0 cm

Scan or tap for the full solution 

Q.6 In an astronomical telescope in normal adjustment a straight black line of length L is drawn on inside part of objective lens. The eye-piece forms a real image of this line. The length of this image is I . The magnification of the telescope is [AIPMT 2015]

- (1) $\frac{L+I}{L-I}$ (2) $\frac{L}{I}$ (3) $\frac{L}{I} + 1$ (4) $\frac{L}{I} - 1$

Scan or tap for the full solution 

Q.7 If the focal length of objective lens is increased then magnifying power of [AIPMT 2014]

- (1) microscope will increase but that of telescope decrease.
(2) microscope and telescope both will increase.
(3) microscope and telescope both will decrease.
(4) microscope will decrease but that of telescope will increase.

Scan or tap for the full solution 

Q.8 The magnifying power of a telescope is 9. When it is adjusted for parallel rays the distance between the objective and eyepiece is 20 cm. The focal length of lenses are [AIPMT 2012 (Prelims)]

- (1) 10 cm, 10 cm (2) 15 cm, 5 cm
(3) 18 cm, 2 cm (4) 11 cm, 9 cm

Scan or tap for the full solution 

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	2	1	4	3	2	2	4	3			