



# PHYSICS

## BOOKS - TARGET PUBLICATION

### OBSERVING SPACE: TELESCOPES

#### Exercise

1. Choose the correct alternative

Light is an \_\_\_\_\_ wave.

A. a magnetic

B. an electric

C. an electromagnetic

D. a mechanical

**Answer: C**



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**2. Choose the correct alternative**

\_\_\_\_\_telescopes are also known as visible radiation telescopes.

A. X-ray

B. Radio

C. Optical

D. Gamma ray

**Answer: C**



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**3. Choose the correct alternative**

The wavelength of visible light is between

A. 4 m and 8m

B. 400 nm and 800 nm

C. 400 mm and 700 mm

D. 400 pm and 800 pm

**Answer: B**



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**4. Choose the correct alternative**

The images produced by refracting telescopes have errors of colours is also known as \_\_\_\_\_.

A. chromatic aberration

B. chromatic disruption

C. chromatic refraction

D. chromatic reflection

**Answer: A**



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**5. Choose the correct alternative**

Which waves are detected by GMRT?

A. X-rays

B. Radio waves

C. Gamma rays .

D. Visible rays

**Answer: B**



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**6. Choose the correct alternative**

\_\_\_\_\_telescope has a mirror of diameter 94

inches and is orbiting at a height of 569 km from earth.



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## 7. Complete the paragraph

Select the appropriate options and complete the following paragraph.

(optical, X-ray, artificial, 1990, 1999, 2015, radio, 1969)

Hubble telescope is an \_\_\_\_\_telescope which was launched into space in

\_\_\_\_\_.Chandra telescope is an \_\_\_\_\_telescope  
which was launched into space in  
\_\_\_\_\_.Astrosat is an \_\_\_\_\_satellite which was  
launched into space in \_\_\_\_\_.



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**8. Name the following**

A special type of telescope used to receive  
radio waves emitted by the heavenly bodies.



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**9.** Name the following

A telescope that is designed to observe remote X-ray emitting objects in space



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**10.** Name the following

An optical telescope which uses a convex mirror, a concave mirror and a lens.



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**11.** Name the following

The institute where the biggest optical telescope in India is situated.



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**12.** Name the following

Indian scientist who have a certain X-ray telescope named after him.



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**13.** True or False.

If false, write the correct sentence

Galileo was the first scientist to use 4 telescope for space observation.



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**14.** True or False.

If false, write the correct sentence

Earth's atmosphere allows almost all the X-rays coming from space.





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**15.** True or False.

If false, write the correct sentence

Newtonian telescopes are made using a Concave mirror, a plane mirror and a lens.



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**16.** True or False.

If false, write the correct sentence

Chandra telescope is a radio telescope.



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**17. Odd one out**

NASA, ISRO, GMRT, ARIES.



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**18. Odd one out**

Hubble, Chandra, GMRT, Astrosat



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## 19. Complete the analogy

Radiowaves: Longer than 20 centimetre::\_\_\_\_\_ : Shorter than 3 picometre.



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## 20. Complete the analogy

Newtonian telescopes : concave mirror, a plane mirror and a lens ::\_\_\_\_\_ ss: Convex mirror, a concave mirror and a lens.



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21. Match the following

Match the radiations in group 'A' with their wavelength range in group 'B'.

	Group 'A'		Group 'B'
i.	X-rays	a.	0.3 mm – 20 cm
ii.	Infrared waves	b.	300 pm – 400 nm
iii.	Ultraviolet rays	c.	800 nm – 0.3 mm
iv.	Micro waves	d.	3 pm – 300 pm



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22. Match the following

Form pairs

	Group 'A'		Group 'B'
i.	X-rays	a.	GMRT
ii.	Optical Telescope	b.	ISRO
iii.	Indian radio telescope	c.	Hubble
iv.	Launching artificial satellites	d.	Chandra



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23. Explain the construction of Galileo's telescope.



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**24.** Answer the following

Will one telescope be sufficient for us to observe space completely?



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**25.** Answer the following

Why do we need different telescopes for the purpose?



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**26.** Answer the following

Are telescopes installed even in space?



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**27.** Answer the following

Give any two examples of optical telescopes.



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**28.** Diagram based question:

Which type of telescopes can be made using a concave mirror, convex mirror, plane mirror and a lens? Draw diagrams of these telescopes.



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**29.** Explain the construction of Galileo's telescope.



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**30.** Answer the following

Write short note on Giant Meterwave Radio Telescope (GMRT).



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**31.** Answer the following question:

What are the difficulties in using ground based optical telescope? How are they overcome?



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**32. Answer the following**

Classify the following telescopes (Hubble telescope, GM RT, Chandra telescope, Newtonian telescope, Cassegrain telescope) depending upon the type of radiation

Visible radiation



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**33.** Answer the following

Classify the following telescopes (Hubble telescope, GM RT, Chandra telescope, Newtonian telescope, Cassegrain telescope) depending upon the type of radiation

Radiowave radiation



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**34.** Answer the following

Classify the following telescopes (Hubble

telescope, GM RT, Chandra telescope,  
Newtonian telescope, Cassegrain telescope)  
depending upon the type of radiation

X-ray radiation



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**35.** Answer the following

State the difference between EDUSAT and IRS.



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### 36. Give reasons

Why are reflecting telescopes preferred over refracting telescopes?



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### 37. Answer the following question:

Why are optical telescope located in uninhabited places on mountains?



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**38.** Answer the following question:

Why can an X-ray telescope not be based on the earth?



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**39.** Distinguish between Hubble telescope and Chandra telescope.



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40. Complete the given chart/table.

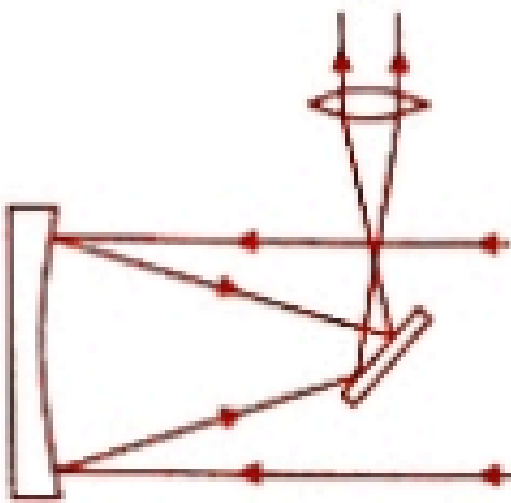
Complete the following table:

Satellites	Functions/ Features
INSAT/ GSAT	_____
_____	Used exclusively for education purpose
IRS	_____
_____	It is a unique system having different kinds of telescopes (viz., UV and X-ray) on a single satellite



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41. Questions based on diagram **Study the figure and answer the following question**



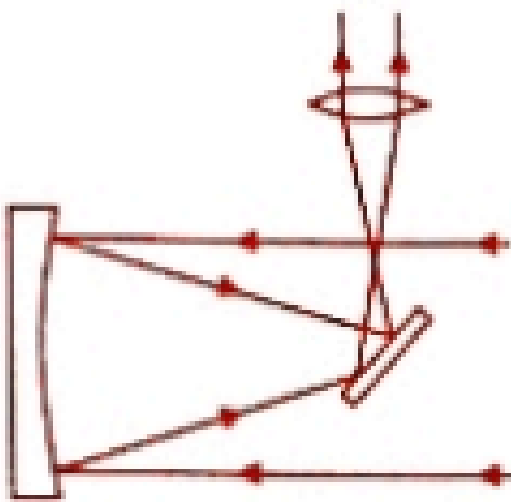
What

type of telescope is shown in the figure?



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42. Questions based on diagram Study the figure and answer the following question



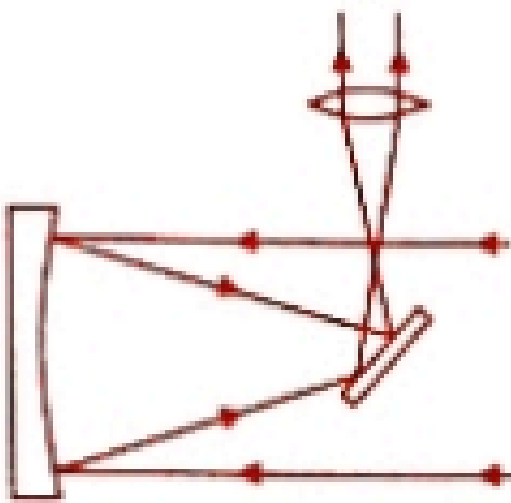
**Label**

**the main parts of the telescope.**



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**43. Questions based on diagram Study the figure and answer the following question**



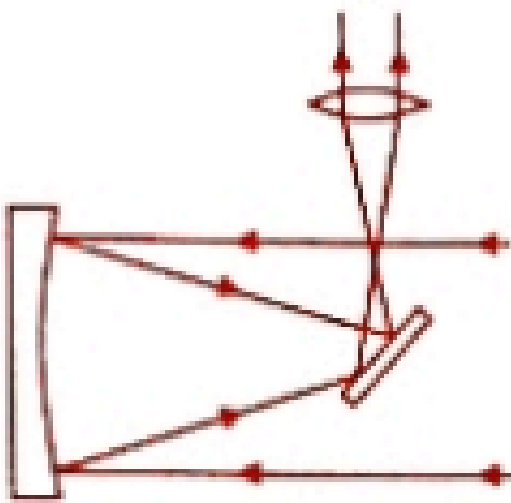
Which

type of mirror does the telescope use?



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44. Questions based on diagram Study the figure and answer the following question



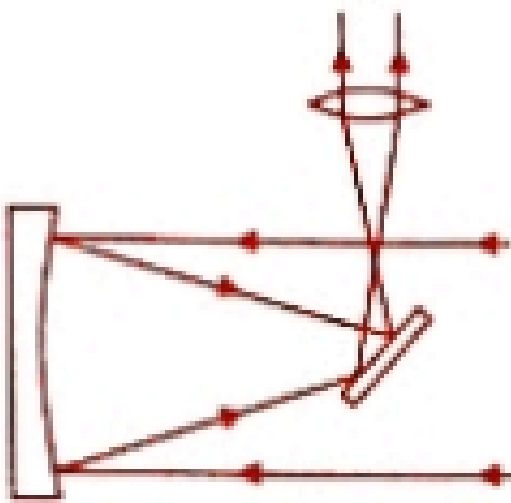
**What**

**other type of telescope uses a curved mirror?**



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**45. Questions based on diagram Study the figure and answer the following question**



**Explain**

**the working of the above telescope.**



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**46. What is the difference between space and sky.**



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**47. What is meant by space observation? Why is it important?**



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**48. Collect information = ahowt —various observatorics in India and present it in the class.**



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49. Choose the correct alternative.

\_\_\_\_\_satellite has Ultra-violet and X-ray detectors.

A. ASTROSAT

B. INSAT

C. EDUSAT

D. GSAT

**Answer:**



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50. Choose the correct alternative.

The position of the \_\_\_\_\_ was useful for sea goers for navigation.

A. galaxy

B. constellations

C. moon

D. comets

**Answer:**



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**51. Choose the correct alternative.**

**The telescope which uses radio waves having wavelength of about one metre coming from heavenly bodies is**

**A. GMRT**

**B. Hubble**

**C. Chandra**

**D. Cassegrain**

**Answer:**



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**52. Choose the correct alternative.**

**The wavelength of \_\_\_\_\_ is between 400 nm and 800 nm.**

**A. radio waves**

**B. X-rays**

**C. infra-red rays**

**D. visible light**

**Answer:**



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**53. Answer the following.**

**Find the odd one out and justify your answer.**

**Newtonian, Cassegrain, Hubble, Chandra.**



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**54. Answer the following.**

**Complete the given analogy.**

**Radio telescope : radio waves : , Chandra  
telescope:**



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**55. Answer the following.**

**State true or false. If false, write the correct sentence.**

**The largest Indian optical telescope located at Bengaluru has a mirror with a diameter of 3.6 metre.**



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**56. Answer the following.**

**Name the following.**

**An optical telescope which uses concave and plane mirror:**



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**57. Give scientific reasons**

**Chandra telescope cannot be based on the earth.**



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## **58. Give scientific reasons**

**Why do we need different types of telescopes?**



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## **59. Answer the following.**

**Give detailed explanation of Hubble telescope.**



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60. Answer the following.

Write short note on Chandra telescope.



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61. Answer the following.

Complete the following table:

Satellites	Functions/ Features
INSAT/ GSAT	_____
_____	Used exclusively for education purpose
_____	Used for the monitoring and management of natural resources as well as disaster management
ASTROSAT	_____



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**62. Answer the following.**

**Explain Giant Meterwave Radio Telescope (GMRT) in detail.**



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**63. Answer the following question:**

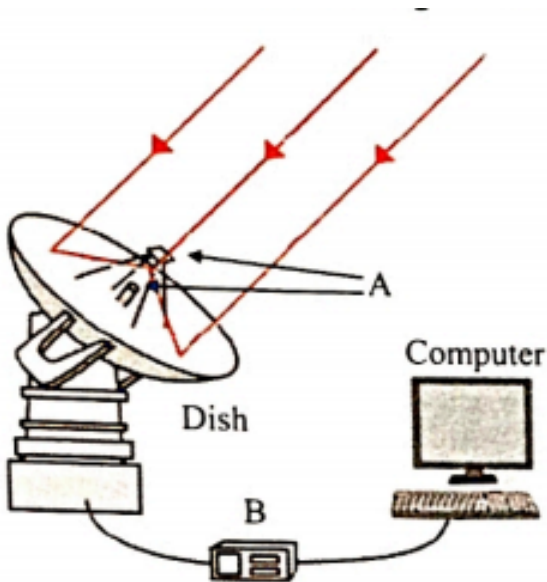
**What are the difficulties in using ground based optical telescope? How are they overcome?**



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64. Answer the following.

Observe the given figure and answer the questions.



What

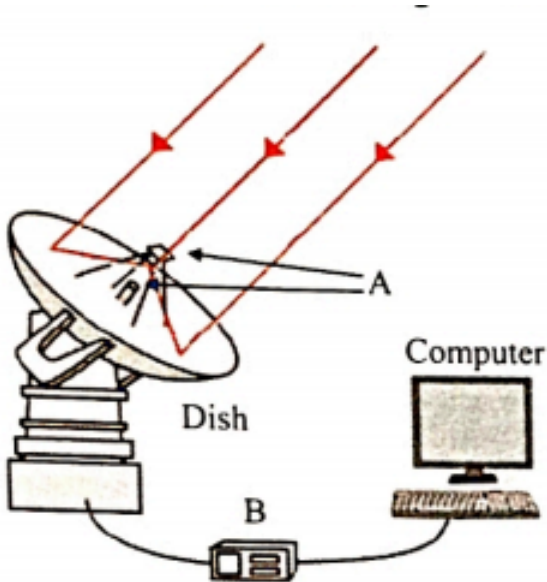
type of telescope is shown in the figure?



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65. Answer the following.

Observe the given figure and answer the questions.



Name

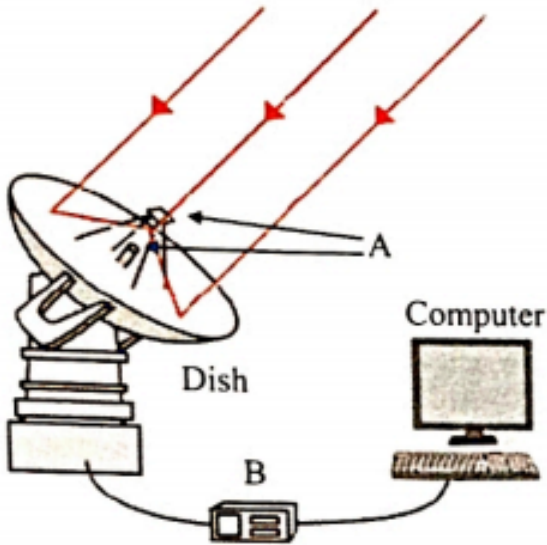
the parts A and B shown in figure.



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66. Answer the following.

Observe the given figure and answer the questions.



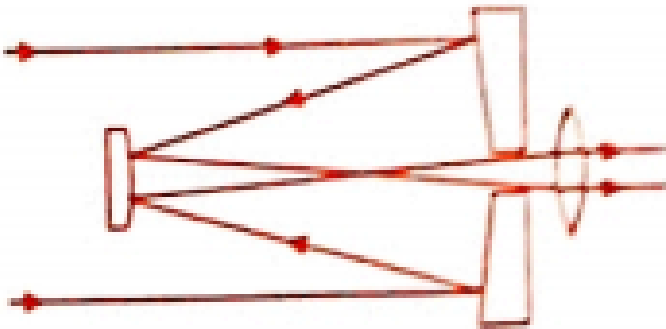
Which  
rays of spectrum can be detected using the  
telescope shown in figure?



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67. Answer the following.

Study the figure and answer the following question



What

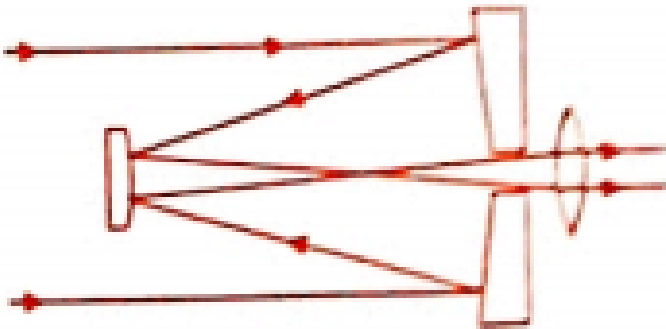
type of telescope is shown in the figure?



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68. Answer the following.

Study the figure and answer the following question



Label

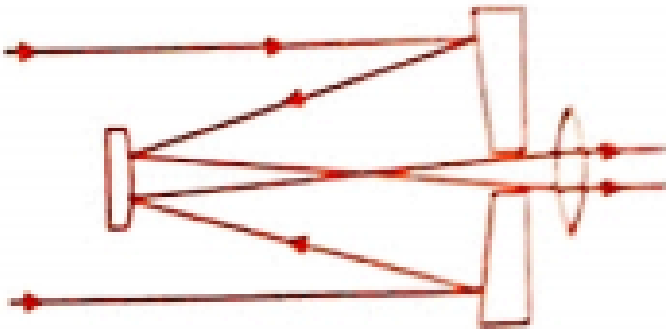
the main parts of the telescope.



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69. Answer the following.

Study the figure and answer the following question



Which

type of mirror does the telescope use?

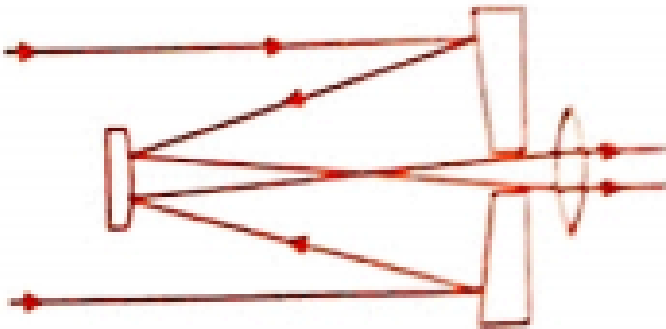


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70. Answer the following.

Study the figure and answer the following question



Which other type of telescope uses a curved mirror?



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**71. Answer the following.**

**Classify the following telescopes depending upon the type of radiations (Visible, Radiowave. X-ray).**

**Also state any one characteristic**

**Hubble telescope**



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**72. Answer the following.**

**Classify the following telescopes depending**

upon the type of radiations (Visible, Radiowave. X-ray).

Also state any one characteristic

GMRT



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**73. Answer the following.**

**Classify the following telescopes depending upon the type of radiations (Visible, Radiowave. X-ray).**

**Also state any one characteristic**

**Chandra telescope**



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**74. Answer the following.**

**Classify the following telescopes depending upon the type of radiations (Visible, Radiowave. X-ray).**

**Also state any one characteristic**

**Newtonian telescope**



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**75. Answer the following.**

**Classify the following telescopes depending upon the type of radiations (Visible, Radiowave. X-ray).**

**Also state any one characteristic**

**Cassegrain telescope**



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