



PHYSICS

BOOKS - BETTER CHOICE PUBLICATION

OPTICAL INSTRUMENTS

Very Short Answer Type Questions

1. What is myopia?



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2. What is hypermetropia?



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3. What is meant by presbyopia ?



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Most Expected Questions

1. What is the function of iris in human eye?



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2. Name the type of lenses used for correcting
a
myopic eye



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3. What do you mean by limit of resolution of
an optical instrument ?



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4. Explain two advantages of a reflecting telescope over a refracting telescope.



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5. Answer the following questions: Why must both the objective and the eyepiece of a compound microscope have short focal lengths?



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6. Telescope lens usually has large aperture. Why?



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Short Answer Type Questions

1. Define resolving power of an astronomical telescope and state the factors on which its value depends.



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2. What is difference between hypermetropia and presbyopia?



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3. What do you mean by resolving power of a microscope. State the factors on which it depends.



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4. Define resolving power of compound microscope.



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5. Define resolving power of telescope.



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6. Define resolving power of compound microscope.



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7. What is Accommodation of eye? Write various defects of vision and their cause. How the eye of person suffering from nearsightedness and farsightedness may be corrected ?



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8. A myopic person prefers to remove his spectacles, while reading a book. Why ?



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9. What is hypermetropia?



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10. Explain the working of simple microscope and find an expression for its magnifying power. What are the uses of simple microscope?



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11. What is myopia? What are its causes? Name the type of the lens to correct this defect.



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12. Bring out the difference between a refracting and a reflecting type telescope.



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Long Answer Type Questions

1. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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2. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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3. What is the magnifying power of an astronomical telescope when the final image of a distant object is formed at least distance of distinct vision?



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4. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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5. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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6. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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7. What is the magnifying power of an astronomical telescope when the final image of a distant object is formed at least distance of distinct vision?



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8. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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9. What is the magnifying power of an astronomical telescope when the final image of a distant object is formed at least distance of distinct vision?



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10. Explain the construction and working of an astronomical telescope. find an expression for its magnifying power in normal adjustment.



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11. Draw the course of rays in an astronomical telescope, when the final image is formed at infinity. Also define the magnifying power of the astronomical telescope in this position.



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12. Draw a ray diagram to show image formation in a compound microscope. Find expression for its magnifying power.



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13. Define the magnifying power of compound microscope.



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14. Draw a ray diagram to show image formation in a compound microscope. Find expression for its magnifying power.



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15. Draw the ray diagram of a compound microscope.



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16. Define the magnifying power of a compound microscope.



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17. Draw a ray diagram to show image formation in a compound microscope. Find expression for its magnifying power.



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18. Draw a ray diagram of compound microscope for the final image formed at least distance of distinct vision?



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19. Draw a ray diagram of compound microscope for the final image formed at least distance of distinct vision?



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20. Draw a labelled ray diagram of a compound microscope. Explain its working and derive an expression for its magnification power when final image is formed at a least distance of distinct vision.



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21. Draw a ray diagram to show image formation in a compound microscope. Find expression for its magnifying power.



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22. With the help of labelled diagram, give the principle and magnifying power of compound microscope, when final image is formed at least distance of distinct vision.



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23. With the help of labelled diagram, give the principle and magnifying power of compound microscope, when final image is formed at least distance of distinct vision.



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24. Draw a labelled diagram of human eye and explain the terms :far point ,Power of accommodation , persistence of vision and the

least distance of distinct vision for a human eye.



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25. What is the cause of myopia? How can it be corrected ? Explain with a labelled diagram.



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26. Draw a labelled diagram of human eye and explain the terms :far point ,Power of

accommodation , persistence of vision and the least distance of distinct vision for a human eye.



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27. What is Accomodation of eye? Write various defects of vision and their cause. How the eye of person suffering from nearsightedness and farsightedness may be corrected ?



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28. What is least distance of distinct vision?



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29. With the help of labelled diagram, give the principle and magnifying power of compound microscope, when final image is formed at least distance of distinct vision.



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30. What do you mean by accommodation ?



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31. Draw a labelled diagram human eye.



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Numericals Problems

1. A compound microscope consists of an objective lens of focal length 2.0 cm and an

eyepiece of focal length 6.25 cm separated by a distance of 15 cm. How far from the objective should an object be placed in order to obtain the final image at the least distance of distinct vision (25 cm)? What is the magnifying power of the microscope in?



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2. A compound microscope consists of an objective lens of focal length 2.0 cm and an eyepiece of focal length 6.25 cm separated by

a distance of 15 cm. How far from the objective should an object be placed in order to obtain the final image at the least distance of distinct vision (25 cm)? What is the magnifying power of the microscope in?



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should an object be placed in order to obtain the final image at the least distance of distinct vision (25 cm)? What is the magnifying power of the microscope in?



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4. Ram's near point is 50 cm. Find the nature and power of lens which would enable him to read a book placed at 25 cm from his eyes.



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5. Ram's near point is 50 cm. Find the nature and power of lens which would enable him to read a book placed at 25 cm from his eyes.



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6. Ram's near point is 50 cm. Find the nature and power of lens which would enable him to read a book placed at 25 cm from his eyes.



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7. A farsighted person has a near point of 75 cm for one eye and a near point of 100 cm for the other. What powers should corrective lenses have to allow the person to see an object clearly at a distance of 25 cm.



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8. A certain myopic person has a far point of 150 cm.

What power of a corrective lens must have to allow him to see distant objects clearly ?



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9. A certain myopic person has a far point of 150 cm.

If he is able to read a book at 25 cm while wearing the glasses, is his near point less than 25 cm ?



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10. A certain myopic person has a far point of 150 cm.

What power of a corrective lens must have to allow him to see distant objects clearly ?



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11. A person can see objects clearly, when they are farther than 12.5 m away.

What type of lens and what type of power will allow the person to see distant objects clearly ?



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12. A person can see objects clearly, when they are farther than 12.5 m away.

What type of lens and what type of power will allow the person to see distant objects clearly ?



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13. The near point of a hypermetropic person is at 75 cm from the eye. What is the power of the lens required to enable him to read clearly a book held at 25 cm from the eye ?



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14. If a person uses spectacles of power $+ 1.0$ diopetre, what is the nearest distance of distinct vision for him ? Given that near point of the person is 75 cm from the eye.



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15. Ram's near point is 50 cm. Find the nature and power of lens which would enable him to

read a book placed at 25 cm from his eyes.



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