PHYSICS

BOOKS - NAVNEET PUBLICATION

SPACE MISSION

Solved

1. What is the difference between space and sky.

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2. What are different objects in the solar system ?

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3. What is meant by a satellite ?

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4. How many natural satellites does the earth have ?

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5. Which type of telescopes are orbiting around the earth? Why is it necessary to put them in space ?

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6. Where does the signal in your cell phone come from ?

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7. Where from does it come to mobile towers?

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8. Where does the signal to your TV set come from ?

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9. You may have seen photographs showingthe position of monsoon clouds over the country in the newspaper. How are these images obtained?

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Exercise

1. Fill in the blanks and explain the statements with reasoning :

If the height of the orbit of a satellite from the earth's surface is increased , the tangential velocity of the satellite will.....

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2. Fill in the blanks and explain the statements with reasoning :

The initial velocity (during launching) of the

Mangalyaan must be greater than..... from the earth.

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3. Fill in the blanks :

A man -made object revolving around the earth in a fixed orbit is called.....

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4. Fill in the blanks :

Chandrayaan -I discovered the presence of .....on the moon

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5. Fill in the blanks :

Apart from launching a satellite around the earth . India has been able to launch a satellite around.....

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6. Fill in the blanks :

All satellite work on ..... Energy.

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7. Fill in the blanks :

..... are used to carry and place a satellite in a specific orbit.

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8. Fill in the blanks :

USA has developed .....as an alternative to space launch vehicles.

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9. Fill in the blanks :

Hubble telescope is a ..... satellite.

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10. Fill in the blanks :

..... executed the first ever mission to the moon in the world.

11. Fill in the blanks :

..... executed the first manned mission to the moon in the world.

12. Choose the correct alternative and write it along with its alloted alphabet:

Which one of the following is a Low Earth Orbit (LEO) satellite?

A. Navigational satellite

B. Geostationary satellite

C. International Space Station

D. Allof the above

Answer: A::C

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13. Choose the correct alternative and write it along with its alloted alphabet:

Which of the following satellite launchers is developed by india?

A. INSAT

B. IRNSS

C. EDUSAT

D. PSLV

Answer:

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14. Choose the correct alternative and write it along with its alloted alphabet:

The minimum velocity of the spacecraft to escape from the earth's gravitational force must be.....

A. 112 km/s

B. 11.2 km/s

C. 1.12 km/s

D. 0.112 km/s

Answer: A::B

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15. Choose the correct alternative and write it along with its alloted alphabet:

The astronomical object closet to us is .....in our galaxy.

A. Mars

B. Venus

C. Jupiter

D. Moon

Answer:

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16. Considering the correlation between the words of the first pair, pair the third word accordingly with the proper answer or considering the first correleation, complete

the second :

IRNSS: Direction showing satellite :: INSAT: .....

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17. Considering the correlation between the words of the first pair, pair the third word accordingly with the proper answer or considering the first correleation, complete the second :

Hubble telescope : 569 km high from the

earth's surface:: Revolving orbit of Hubble telescope: .....

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18. State whether the following statements are 'True or False'. Correct the false statement:

If a spacecraft has to be sent away from the influence earth's gravitational field, its velocity must be less than the escape velocity

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19. State whether the following statements are 'True or False'. Correct the false statement:

The escape velocity on the Moon is less than that on the Earth

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20. State whether the following statements are 'True or False'. Correct the false statement:

A satellite needs a specific velocity to revolve in specific orbit

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21. State with reasons whether the following statements are true or false :

If the height of the orbit of a satellite increases, its velocity must also increase.

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22. Answer the following questions :

What is meant by an artificial satellite? How

are the satellites classified based on their functions ?

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23. Answer the following questions:

What is an aritifical satellite?Name any two types of artifical satellite and state their functions.

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24. Answer the following questions:

write the importance of artifical satellites in your words.

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25. Answer the following questions :

Name the first artificial satellite sent by Russia in space .

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26. Answer the following questions :

What is meant by the orbit of a satellite ? On what basis and how are the orbits of artificial satellites classified ?

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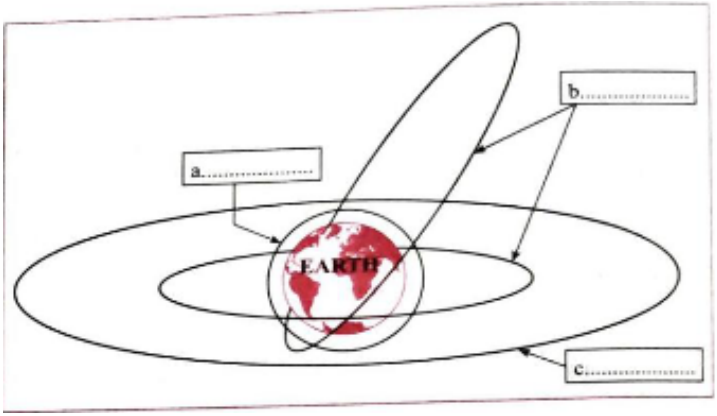
27. Answer the following questions :

Write the proper name of the orbits of satellites shown in the following figure with

their height from the earth's surface.



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28. Why are geo-stationary satellites not useful for studies of polar regions?

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29. Answer the following questions:

What is a geostationary satellite?Why are geostationary satellites not useful for studies of polar regions?

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30. Answer the following questions :

What is meant by a satellite launch vehicle? Explain the satellite launch vehicle developed by ISRO with the help of a schematic diagram.

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31. Why is it beneficial to use satellite launch vehicles made of more than one stage?

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32. Answer the following questions :

Explain the need and inportance of space missions.

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33. Answer the following questions :

What are space expeditions ? Explain their need and importance in your words.

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34. Answer the following questions :

What are the objective of the space mission ?

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35. Answer the following questions :

Write on significant space missions carried out by man.

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36. Answer the following questions :

Bring out the contribution of India's space missions.

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37. Answer the following questions :

Which satellite is used in educational field among INSAT and GSAT series ?

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38. Answer the following questions :

What is meant by space debris? Why is there need to manage the debris?

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39. Answer the following questions :

What is the principle behind the working of a satellite launch vehicle?

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40. Answer the following questions:

Write the formula for the escape velocity.

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41. Answer the following questions:

Write the long form of ISRO.

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42. Solve the following examples/numerical problems :

If the mass of a planet is 8 times that of the earth and its radius is twice the radius of the earth , what will be the escape velocity for that

planet?(Escape velocity for the earth=11.2 km/s)

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43. Solve the following examples/numerical problems :

If the mass of a planet is 8 times that of the earth and its radius is twice the radius of the earth , what will be the escape velocity for that planet?(Escape velocity for the earth=11.2 km/s)

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44. Solve the following examples/numerical problems :

If the mass of a planet is eight times the mass of the earth and its radius is twice the radius of the earth, what will be the ratio of the escape velocity on the earth to the escape velocity on the planet?

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45. How much time a satellite in an orbit at height 35780 km above earth's surface would take,if the mass of the earth would have been four times its original mass?

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46. Solve the following examples/numerical problems :

If the height of a satellite completing one revolution around the earth in T seconds in h

meters , then what would be the height of a satellite taking $2\sqrt{2}$ T seconds for one revolutions?

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47. Solve the following examples/numerical problems :

Calculate the critical velocity (Vc) of the satellite to be located at 35780 km above the surface of the earth .

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48. Solve the following examples/numerical problems :

Calculate the critical velocity (Vc) of the satellite to be located at 2000 km above the surface of the earth?

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