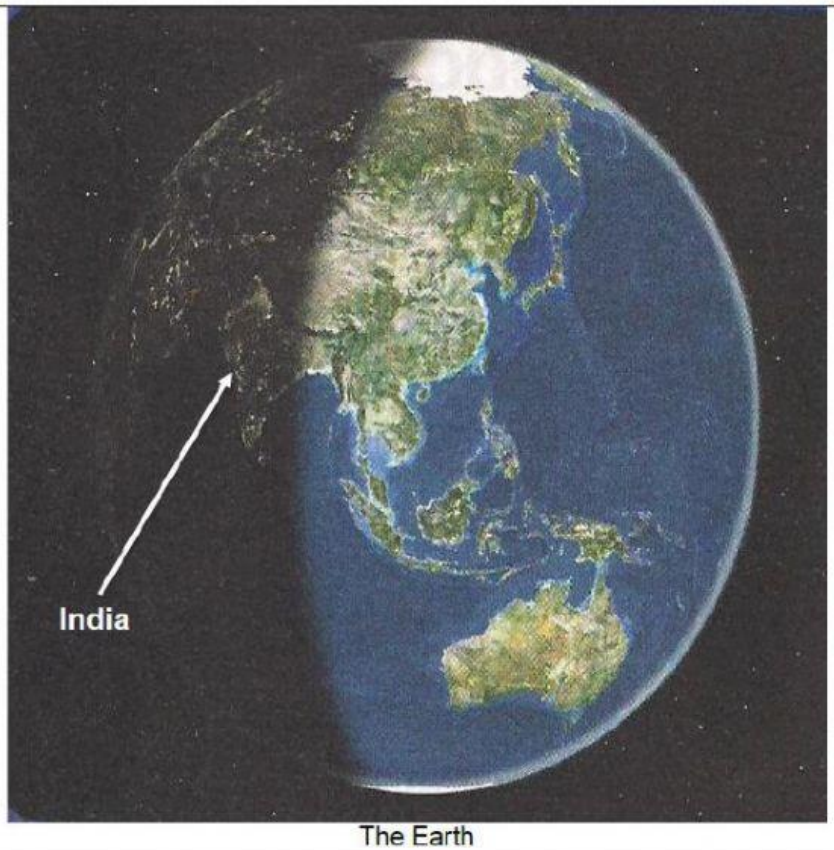
QUESTION 9

9.1 The planets Jupiter, Uranus, Neptune and Saturn are gas giants.

Give THREE ways in which the gas giants are different from the other planets. (3 x 1) (3)

9.2 Look at the picture of the Earth below.



The Earth

9.2.1 What do you observe from the picture? (1)

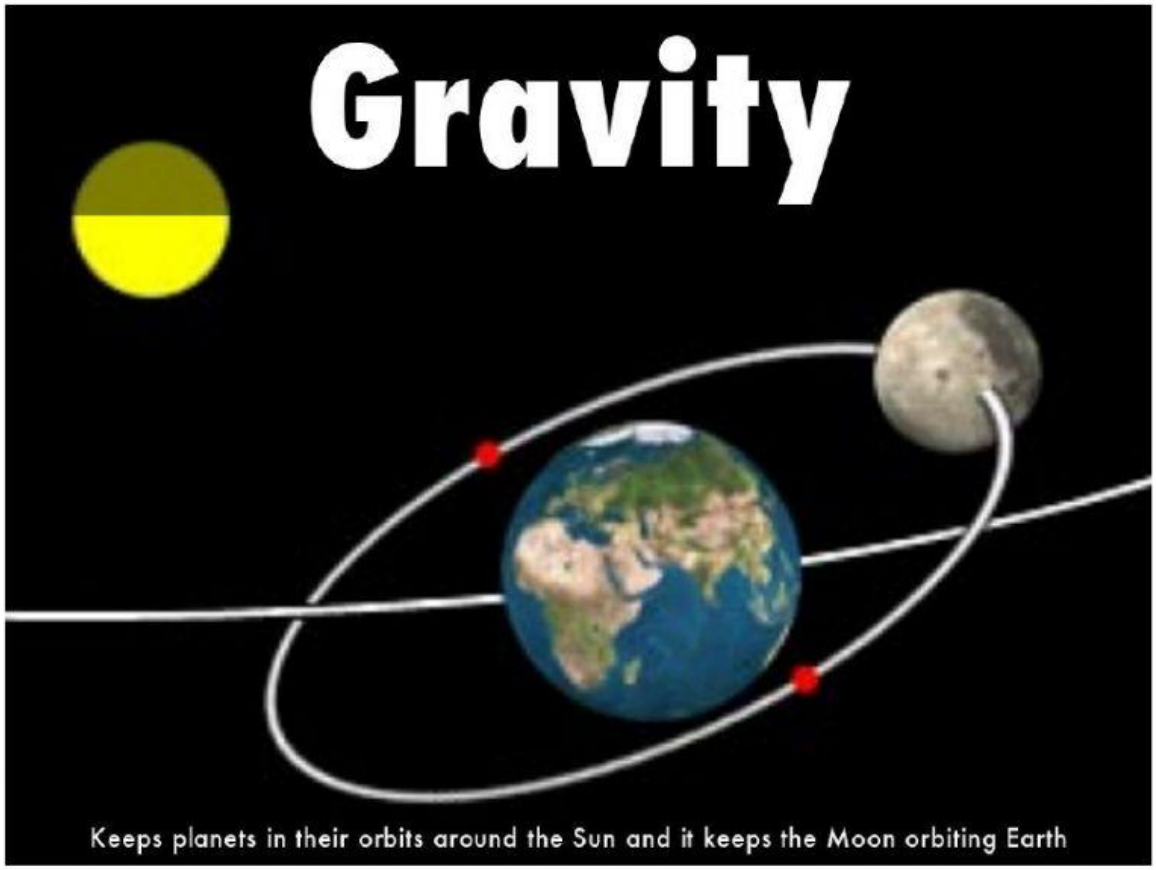
9.2.2 Why is the other part of the Earth dark? (1)

9.2.3 Is India in the lit or dark part? (1)
Is it day or night there? (1) (2)
[7]

LIVEWORKSHEETS

QUESTION 10

Draw a fully labeled diagram to show the revolutions of the Earth and the Moon. Label the Earth, Moon and the Sun and the orbits of the Earth and Moon. **[6]**



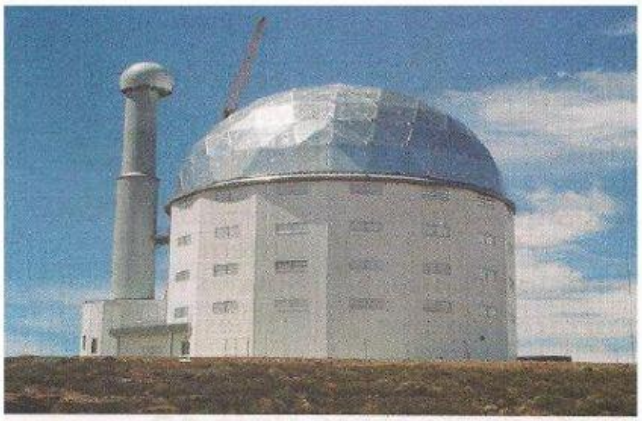
LIVEWORKSHEETS

QUESTION 11

Read the whole case study carefully and answer the questions that follow.

South Africa's largest telescopes

The **Southern African Large Telescope** (SALT) is a state-of-the-art scientific instrument. SALT is situated near Sutherland in the Northern Cape. This site was chosen for its dark and clear skies and good weather conditions. SALT is amongst the largest optical telescopes in the world. SALT can detect light that is as faint as a candle flame on the moon would appear to us. This is why it is important to have dark skies with no city lights nearby.



The Southern African Large Telescope (SALT) in Sutherland

Square Kilometer Array Radio Telescope (or SKA)

It will consist of thousands of radio receiver dishes mostly in South Africa, but also in other parts of the world, in fact four different continents. The dishes will be linked together into one huge radio telescope system. They will be linked with high-speed data cables and the data will be processed by some of the fastest computers available. The dishes together will add up to one square kilometer of surface area. This huge size and spread across continents will make the SKA at least 50 times more powerful, and 10 thousand times faster than any other radio telescope.

KAT-7 (**Karoo Array Telescope**) is part of the SKA and is already operating. It has 7 receiver dishes. MeerKat, also in the Karoo, will have 64 receiver dishes and will be completed in 2016.

Radio receiver dish of KAT-7

11.1 What do the following abbreviations stand for? SKA, KAT and SALT. (3 x 1) (3)

11.2 Explain why SALT was built near Sutherland. (1 x 1) (1)

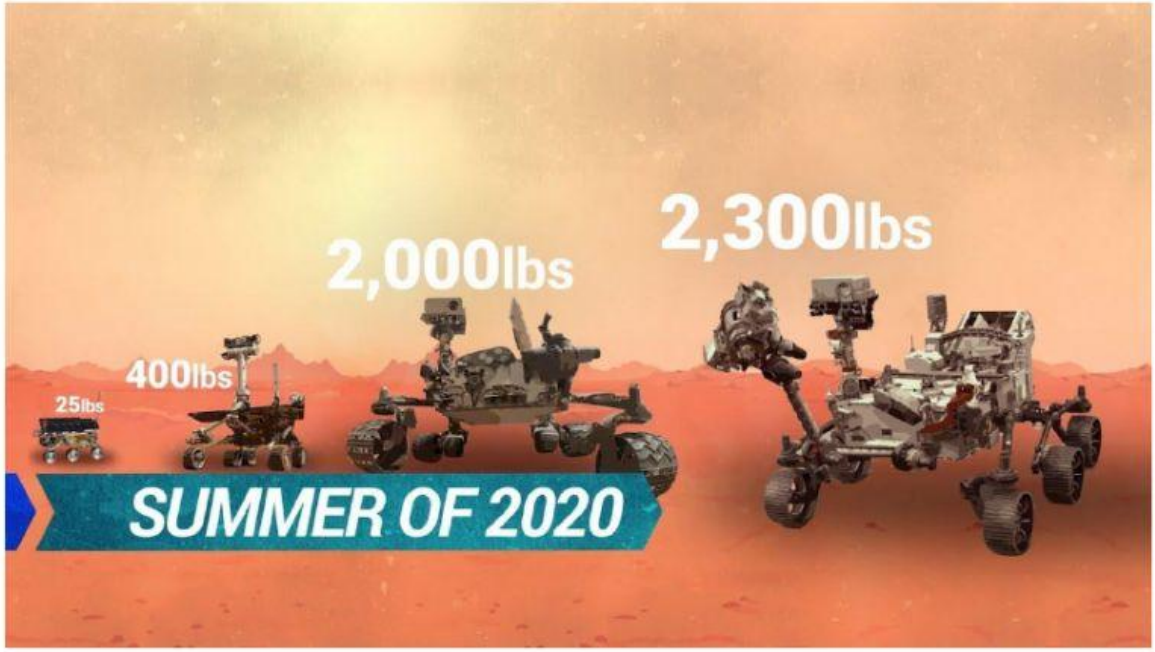
LIVEWORKSHEETS

QUESTION 12

12.1 If you are appointed as a designer of a Robot Vehicle to be sent to Mars, mention TWO key features that you would include in such a vehicle. (2)

12.2 Compare the moon rovers and Mars rovers by completing the following:

12.2.1 Moon rovers and Mars rovers are similar because … (2 x 1) (2)



Mars rovers

LIVEWORKSHEETS

Moon rovers

12.2.2 Moon rovers and Mars rovers are different because … (1 x 1) (1)

[5]

LIVEWORKSHEETS