

<b>BITS, PILANI-K. K. BIRLA, GOA CAMPUS</b>		
<b>GOA</b>		
<b>GS F 326</b>	<b>Mid Term Examination</b>	<b>Marks : 30</b>
<b>Creative Thinking</b>	<b>(open book)</b>	<b>1 Oct 2019</b>

**Q.1. Read the following case and answer the questions given below.**

In 2004, The United States Government announced plans to send humans to the Moon, and to eventually send humans to Mars. This was quite a change in policy, as NASA's Solar System exploration has only been done by robotic missions since the 1970s. NASA and many other international space agencies and governments intend to cooperate to send humans to the Moon to live, conduct experiments and help plan for other missions to Mars and beyond. Sending humans to the Moon offers a great opportunity for advances in science and technology. However, many argue that the amount of money required for this project would be much better spent on sustainable technology here on Earth, to combat issues such as water shortages, poverty and climate issues. The Australian Government has been asked to join this group and provide money and research to help send humans to the Moon. A strategist and policy advisor was asked to advise the government: The major question that was posed before the strategist was: Should we send people to live on the Moon, or should we spend the money on much needed projects on Earth? The strategist employed 6 thinking hats in his team and who have the following recommendations:

**1<sup>st</sup> hat-** We know that NASA has largely been successful in the various missions it has undertaken. Nobody thought that they'd be able to land a man on the moon, but they achieved it nevertheless. That led to development in various sciences and technologies which put the USA at the forefront of the technological race. Going by NASA's track record, we can assume that they will largely be successful in this mission as well. We know that the moon and other planets will have a lot of resources we could mine to ultimately help the humans to live a better life.

**2<sup>nd</sup> hat-** There are mixed views associated with this plan. On one hand, it feels really good that we would get to explore more of the universe that we live in. On the other hand, this will be a very dangerous mission for the men and women who decide to populate the moon, Mars and beyond. It would in all probability be a one way trip whether they survive or not. That is a great sacrifice to ask of any person to make. Also, though the mission has a good probability to fail, in the long term, the benefits may outweigh the costs.

**3<sup>rd</sup> hat-** This would be a huge project, possibly the biggest one humanity has ever undertaken and as such it will be very important to manage the various facets of the project between the different agencies and governments. This would also require the recruitment and training of people to accomplish the tasks necessary.

**4<sup>th</sup> hat-** This project has a lot to offer. First of all, it will lead to research into better understanding of the universe which will lead to newer inventions which will help mankind for generations to come. It will also assure the long term survival of the human race in the case of a global calamity or mass extinction. It will also lead to better relations among the countries working together and may lead to more global peace overall. The technological

advances through this research will lead to the development of new materials such as nano materials, modes of transport, etc.

**5th hat-** If the concern is that global issues such as poverty, etc would be ignored for this project, we could have a training facility that employs these people in return for working on the space mission. We could also fast track research for better water management which will help with water shortages and renewable energy sources which will help in combating climate issues. Due to scarcity of water on Moon, we may develop water filtering techniques or genetically modified crops which require less water. This would, in the long term, help in combating water shortages too. Thus, we can use this mission as a way to combat global issues.

**6th hat-** The money may be spent uselessly as this project may be ultimately doomed to failure. There is a high probability that the astronauts may be killed during this mission which in itself should be sufficient deterrence to delay this project till we can ensure their survival. This project will also fail if some countries pull out due to an economic recession or overshooting costs which will ultimately lead to all of the research done till then going to waste. This project may very well not be worth the risk to invest millions of dollars instead of using the same money to ensure better lifestyle of the people already living on Earth.

**Q1 a: identify the various hats. [Marks 5]**

**Q1 b: Explain your overall observation about the thinking hats and develop schematics (flow chart/diagram/model) about each thinking cap. [Marks 15]**

**Q2 Sketch out a story board for teenagers on a single sheet of your answer book. The title of this story is "Sleep". You also need to write down the central theme in maximum 5 sentences. (Note: A story board is a sequence of drawings, typically with some directions and dialogue, representing the shots planned for a film or television production/book). [Marks 10]**