

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

First Semester B.Tech Degree Examination December 2021 (2019 scheme)

**Course Code: HUN 101****Course Name: LIFE SKILLS****(2019-Scheme)**

Max. Marks:50

Duration: 2 Hours

**PART A***(Answer all questions, each carries 5 marks.)**(Each answers should not exceed 400 words)*

Marks

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|---|--|-----|
| 1 | Explain intelligent quotient, emotional quotient and spiritual quotient.<br>Explain the importance of these 3 Q's in professional life | (5) |
| 2 | How do you help someone develop self awareness   | (5) |
| 3 | Discuss the steps involved in problem solving  | (5) |
| 4 | Explain the theories on which groups are formed with examples  | (5) |
| 5 | What are the different leadership styles and brief them?   | (5) |

**PART B***Read carefully the following case and answer the questions given below*

- 6 Chandrayaan-2 mission is a highly complex mission, which represents a significant technological leap compared to the previous missions of ISRO. It comprised an Orbiter, Lander and Rover to explore the unexplored South Pole of the Moon. The mission is designed to expand the lunar scientific knowledge through detailed study of topography, seismography, mineral identification and distribution, surface chemical composition, thermo-physical characteristics of top soil and composition of the tenuous lunar atmosphere, leading to a new understanding of the origin and evolution of the Moon.

After the injection of Chandrayaan-2, a series of maneuvers were carried out to raise its orbit and on August 14, 2019, following Trans Lunar Insertion (TLI) maneuver, the spacecraft escaped from orbiting the earth and followed a path that took it to the vicinity of the Moon. On August 20, 2019, Chandrayaan-2 was successfully inserted into lunar orbit. While orbiting the moon in a 100 km lunar polar orbit, on September 02, 2019, Vikram Lander

was separated from the Orbiter in preparation for landing. Subsequently, two de-orbit maneuvers were performed on Vikram Lander so as to change its orbit and begin circling the moon in a 100 km x 35 km orbit. Vikram Lander descent was as planned and normal performance was observed upto an altitude of 2.1 km. Subsequently communication from lander to the ground stations was lost.

The Orbiter placed in its intended orbit around the Moon will enrich our understanding of the moon's evolution and mapping of the minerals and water molecules in Polar regions, using its eight state-of-the-art scientific instruments. The Orbiter camera is the highest resolution camera (0.3 m) in any lunar mission so far and will provide high resolution images which will be immensely useful to the global scientific community. The precise launch and mission management has ensured a long life of almost seven years instead of the planned one year.

- a) List down some key ideas and thoughts based on Chandrayaan-2 mission. (4)
- b) Do you think that the above mission can create a positive impact within their proposed time? (4)
- c) Discuss the communication failures occurred in this case. (5)
- d) Discuss the possible issues involved in the above case. (6)
- e) As engineers, what are the lessons learnt from this case? (6)

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