Unit: 1, lesson: 3

Chawla was born in Karnal, India. She completed her earlier schooling at Tagore Baal Niketan Senior Secondary School, Karnal. She is the first Indian-born woman and the second person in space from this sub-continent. After graduating in Aeronautical Engineering from Punjab Engineering College, India, in 1982, Chawla moved to the United States the same year. She obtained her MasterÕs degree in Aerospace Engineering from the University of Texas in 1984. Later she did her Ph.D. in Aerospace Engineering in 1988 from the University of Colorado. Determined to become an astronaut even in the face of the Challenger disaster 1986 that broke apart 73 seconds into its flight, leading to the deaths of its seven crew members, Chawla joined NASA in 1988. She began working as a Vice President where she did Computational Fluid Dynamics (CFD) research on vertical take-off and landing. In 1991 she got U.S. citizenship and started her career as a NASA astronaut in 1995. She was selected for her first flight in 1996. She spoke the following words while travelling in the weightlessness of space, ÔÔYou are just your intelligence.ÕÕ She had travelled 10.67 million miles, as many as 252 times around the Earth. Her first space mission (Mission STS 87) began on 19 November 1997 with six other astronauts on the Space Shuttle Columbia. On her first mission that lasted for 15 days, 16 hours, 34 minutes and 4 seconds, she travelled 6.5 million miles. She was responsible for deploying the Spartan Satellite which however malfunctioned, necessitating a spacewalk by Winston Scott and Tako Doi, two of her fellow astronauts, to retrieve the satellite. In 2000 she was selected for her second space mission STS 107. This mission was repeatedly delayed due to scheduling conflicts and technical problems. On 16 January 2003, Kanpana Chawla finally started her new mission with six other space crews on the ill-fated space shuttle Columbia. She was one of the mission specialists. Chawla's responsibilities included the microgravity experiments, for which the crew conducted nearly 80 experiments studying earth and space science, advanced technology development, and astronaut health and safety. After a 16 day scientific mission in space, on 1 February 2003, Columbia disintegrated over Texas during its re-entry into the Earth's atmosphere. All the crew in Columbia including Chawla died only 16 minutes prior to their scheduled landing. Investigation shows that this fatal accident happened due to damage in one of Columbia's wings caused by a piece of insulating foam from the external fuel tank peeling off during the launch. During the intense heat of re-entry, hot gases penetrated the interior of the wing, destroying the support structure and causing the rest of the shuttle to break down.

1. Choose the right word which is the closest meaning in the context that has been used in the text.
   a. The word **disaster** refers to text _____
      i) Destruction ii) Edge iii) Desert iv) Attribute
   b. She got the citizenship of USA in _____
      i) 1991 ii) 1992 iii) 1995 iv) 1997
   c. The word **deploying** refers to text _____
      i) Propagate ii) Delayed iii) Dominant iv) Prolong
   d. The word **retrieve** refers to text _____
      i) Thrive ii) Recover iii) Realm iv) Ridiculous
   e. Which statement is incorrect?
      i) Kalpana Chawla's first mission lasted for more than fifteen hours.
      ii) She obtained Masters and Ph D from the same university.
      iii) Her spaceship crushed on 1 February 2003
      iv) She joined NASA after getting the citizenship of the USA

f. The word **disintegrated** refers to text _____
   i) United ii) Ruptured iii) Joined iv) None of them
g. The word **penetrated** refers to text _____
   i) Patient ii) Entered iii) Come out iv) Situated
h. The word **interior** refers to text _____
   i) Heart ii) Intensify iii) Outside iv) Deep
i. **Aeronautical Engineering** refers to _____
   i) Flying aero plane ii) the study of engineering in aviation
   iii) study of science and technology iv) aerial navigation
j. What responsibility was imposed upon Chawla on her first space mission?
   i) To fulfill her duty with utmost sincerity ii) to travel at high speed
   iii) to take care of her fellow astronauts iv) to deploy the Spartan Satellite
k. On what did Chawla perform research after joining NASA?
   i) On space related activities ii) on how to make spaceships
   iii) On the various parts of spaceships iv) on vertical take -off and landing
l. Why did Winston Scott and Tako Doi need a spacewalk?
   i) Because they needed fresh air
   ii) Because they felt suffocated inside the spaceship
   iii) Because they needed to retrieve the satellite
   iv) Because the Spartan Satellite did not function properly

2. Write the answer of the following question.
   a. Describe the education life of Kalpana Chawla
   b. When did she join NASA?
   c. Why did she deploy the Spartan Satellite?
   d. Why did her second mission delay and when did it begin?
   e. When and how did she die?

Valentina Tereshkova was born in the village Maslennikovo, Tutayevsky District, in Central Russia. Tereshkova's father was a tractor driver and her mother worked in a textile plant. Tereshkova began school in 1945 at the age of eight, but left school in 1953 and continued her education through distance learning. She became interested in parachuting from a young age, and trained in skydiving at the local Aeroclub, making her first jump at age 22 on 21 May 1959. At that time she was employed as a textile worker in a local factory. It was her expertise in skydiving that led to her selection as a cosmonaut. After the flight of Yuri Gagarin (the first human being to travel to outer space in 1961), the Soviet Union decided to send a woman in space. On 16 February 1962, "proletaria" Valentina Tereshkova was selected for this project from among more than four hundred applicants. Tereshkova had to undergo a series of training that included weightless flights, isolation tests, centrifuge tests, rocket theory, spacecraft engineering, 120 parachute jumps and pilot training in MiG-15UTI jet fighters.

Since the successful launch of the spacecraft Vostok-5 on 14 June 1963, Tereshkova began preparing for her own flight. On the morning of 16 June 1963, Tereshkova and her back-up cosmonaut Solovyova were dressed in space-suits and taken to the space shuttle launch pad by a bus. After completing her communication and life support checks, she was sealed inside Vostok 6. Finishing a two-hour countdown, Vostok-6 launched

faultlessly. Although Tereshkova experienced nausea and physical discomfort for much of the flight, she orbited the earth 48 times and spent almost three days in space. With a single flight, she logged more flight time than the combined times of all American astronauts who had flown before that date. Tereshkova also maintained a flight log and took photographs of the horizon, which were later used to identify aerosol layers within the atmosphere.

Vostok-6 was the final Vostok flight and was launched two days after Vostok-5, which carried Valary Bykovsy into a similar orbit for five days, landing three hours after Tereshkova. The two vessels approached each other within 5 kilometers at one point, and from space Tereshkova communicated with Bykovsky and the Soviet leader Khrushchev by radio.Much later, in 1977 Tereshkova earned a doctorate in Engineering from Zhukovsky Air Force Academy. Afterwards she turned to politics. During the Soviet regime she became one of the presidium members of the Supreme Soviet. Now this living legend is a member in the lower house of the Russian legislature. On her 70th birthday when she was invited by the Russian Prime Minister Vladimir Putin, she expressed her desire to fly to Mars, even if for a one-way trip.

3. Based on the passage, make short notes in each of the boxes of the flow chart showing the activities done by Valentina Tereshkova (No. 1 has been done for you)

What/who	Events/occurrence	What/when	Where
At the age of eight, Valentina Tereshkova	(i)_____	in 1945	
The (ii)_____ of Valentina Tereshkova	was parachuting	(iii)_____	
She	(iv)_____	in skydiving	at (v)_____
At the age of 22, Valentina Tereshkova	(vi)_____	on (vii)_____ and at that time she was employed	(viii)_____
(ix)_____	selected valentina to send her in the space	on (x)_____	

When you are in the driving seat of a car, you have the steering and the horn in your hands, the brake and accelerator under your feet, eyes open looking ahead, left and right. The same can be said about a motorcycle rider, with some modifications. These are all very visible. But, behind all, there is something that keeps working unseen. And that is the Central Processing Unit (CPU), your brain. CPUs are artificially intelligent machines that are programmed to do specific jobs under fixed conditions and judgments. But the human brain is intelligent by nature. It is the most sophisticated machine that is able to operate on ever-changing conditions and standards of judgment. As conditions in the traffic keep invariably changing, this virtue of sophistication of your brain must be at work when you are driving. The difference between traffic in the roads and highways and racing circuit must not be blurring inside you. Never imagine yourself to be a Michael Schumacher driving an F-1 at 300 mph. Leave no room for fantasy.

4. Make a summary of the text (not more than 100 words)