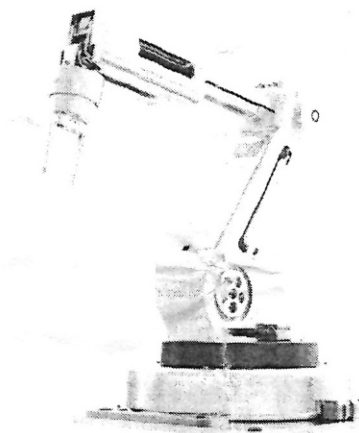


SECTION – B

(Attempt *all* questions from this Section)

Question 3.

[4]



- i. Based on the picture given below, answer the following questions:
 - a. Identify the type of robot and mention its degree(s) of freedom.
 - b. How does this robot enhance efficiency in manufacturing?
 - c. What type of power source does this robot use?
 - d. How does this robot differentiate between objects of different sizes?
- ii. Describe one important application of robots in each of the following areas: [2]
 - a. Education
 - b. Smart Homes
- iii. Robotic surgeons offer great precision, but they lack human feelings. Do you believe they can [2] fully replace human surgeons? Justify your answer.

Question 4.

[8]

- i. Differentiate between a 'robot' and a 'cobot'.
- ii. Artificial Intelligence plays a key role in enhancing the capabilities and performance of collaborative robots. Mention any two ways in which A.I. contributes to cobots functionality.
- iii. The advancement of self-driving cars has been driven by the integration of sensor technologies, Artificial Intelligence and Machine Learning. These technologies aim to improve road safety, reduce human error and revolutionize transportation.
With reference to above, answer the following:
 - a. List any three types of sensors commonly used in self-driving cars.
 - b. What is the role of AI in the operation of autonomous vehicles?
 - c. Which organization defined the levels of driving automation and what do Level 2 and Level 5 mean?
 - d. Name two companies developing or actively testing self-driving technology.