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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**SECOND SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017**

**Course Code: BE102**  
**Course Name: DESIGN AND ENGINEERING**

Max. Marks: 50

Duration: 2 Hours

**Instructions:** *This is an open book examination. The students are permitted to use maximum of 4 text books, class notes, own notes, earlier assignments; but access to mobile phone and internet is not allowed. Exchange of text books/notes not permitted.*

**PART A**

*Answer any 6 questions, each carries 5 marks.*

- 1 Design is a combination of art, architecture and engineering. Write a note to support this statement. (5)
- 2 Write three objectives and three constraints in the design of a glass bottle for Ayurvedic medicines (5)
- 3 What is brainstorming? Why is it important in decision making? (5)
- 4 You are working as a design engineer at the top level of a company. What are the steps to be taken by you in designing a product starting from the realization of the concept? (5)
- 5 What is the importance of supply chain management? What are the precautions required to provide continuous supply in the case of a cement company. (5)
- 6



Fig. A



Fig. B

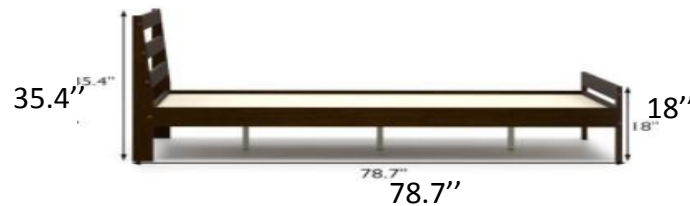
Figures A and B shows two different types of tables. Compare the advantages and disadvantages of each. (5)

- 7 A company decided to introduce a new type of bag useful for college students to carry books. What will be the aesthetics and ergonomics of the product if the company decided to design it differently for boys and girls. (5)
- 8 Suggest an intelligent autonomous way to clean toilets. List out the advantages and disadvantages of this automation. (5)

**PART B**

*Answer any 2 questions, each carries 10 marks.*

- 9 The figure shows a double cot with dimensions. What are the materials (with specification) you require in order to modify this in to a cot with storage space without changing the dimensions? (10)



- 10 Design a device to cut trees with minimal manpower. (10)  
**Objectives:** - The device should be useful to cut big trees also and can work both manually and with electricity.  
**Constrains:** - The person who cuts the tree should be able to carry it while climbing to the top.
- 11 Suppose you are a designer in a small car designing group. Explain how will you implement DFM and DFA as a part of your work. (10)

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