

Reg. No: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B. TECH. DEGREE SPECIAL EXAMINATION, SEPTEMBER 2016

BE102 – DESIGN AND ENGINEERING

Duration: 2 Hours

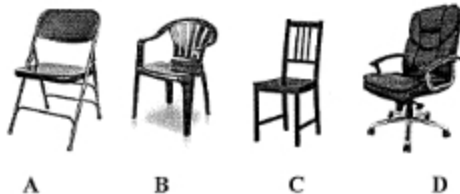
Maximum Mark: 50

(Instructions: Answer all questions; this is an open book examination and the students are permitted to use text books, class notes, own notes, earlier assignments; but access to mobile phone and internet is not allowed)

Part A

(Each question in part A carries 5 marks)

1. Sketch a three legged stool. Why three legged chairs are not used in practice?
2. Compare the following designs of chairs from four specific design attributes.



3. In any good design, many standard parts are used.
List at least 10 standard parts that are used in a completed residential house.
4. Two types of electric bulbs that are used normally are shown below.



A has two pins and B, a screw to fix it in the socket.

Why the first has two contacts and the second only one, in their design?

5. The sketch below shows a plain saucer for placing the cup. What change can improve the saucer design?



Part B

(Each question in Part B carries 10 marks)

6. People throw bits of paper and plastics on the road. Design a bin for dropping these wastes to be kept at the bus stops. Design needs are as follows:
- i) The bin is theft proof (Cannot be removed from the place easily)
 - ii) Rain water cannot get into the bin even when it is kept under a roof.
 - iii) Wind cannot blow out the contents.
 - iv) Easy to remove the contents of the bin without taking out the bin.
 - v) Aesthetically designed.
7. A normal water bottle is shown below.



Design a water bottle for kids (Age group: 4 to 6 years) so that they are always happy to use it.
Mention the special features you would incorporate in it to achieve this.
Give a simple sketch of your design.