Reg. No:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B. TECH. DEGREE EXAMINATION, JUNE 2017

BE 102: DESIGN AND ENGINEERING

Max. Marks: 50 Duration: 2 Hours

Instructions: ***This is an open book examination and the students are permitted to use maximum 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. Five marks each.

1. Give the main objective and constraint for the design of (i) The main entrance door to a house, (ii) The door of a room within the house, (iii) Door to a bathroom inside the house.
2. Two different designs of helmets are shown in the figure'A'and figure 'B'. Compare their merits and demerits.

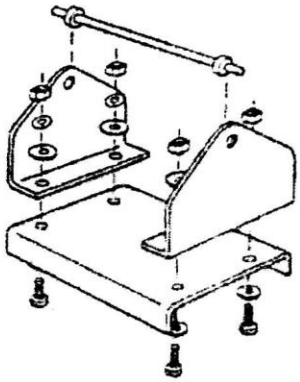
Figure 'A'

Figure 'B'

3. Imagine you are the marketing manager of a company which sells bottled water. Design the bottle so that it as attractive and easy to carry. Also design a trademark for your company and show it on the bottle.
4. Design a book shelf for 'X', where (a) X is ease of assembly, (b) X is ease of disassembly. Justify your answer.
5. Image of a remote control for television developed by a particular company is shown in the figure 'C' below. Prepare a questionnaire to obtain the feedback on the design from the users, so that you can improve upon the design.

Figure 'C'

6. Draw the figure of a smart phone which is both aesthetic and ergonomic.
7. Redesign the assembly given in the following figure based on the principles of design for assembly and manufacture. Sketch the redesigned product.



8. Identify all the parts of a ceiling fan. List out the standard parts.

PART B

Answer any 2 questions. Ten marks for each question.

9. Disassemble the book shelf shown in figure 'D'. Use the materials to make another useful product. Show that the wastage of material is minimal.

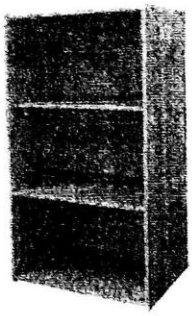


Figure 'D'

10. Modify a car for the use by a differently able person having only one leg.
11. Design a piping network for reuse of water in a residential building enabling water conservation. Sketch the design.

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