

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SECOND SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

**Course Code: BE102**

**Course Name: DESIGN AND ENGINEERING**

Max. Marks: 50

Duration: 2 Hours

**Instructions:** *This is an open book examination and 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. Add Sketches wherever possible.*

**PART A**

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

- 1 Give the advantages and limitations of these three designs. Marks (5)



- 2 Sketch the design of a TV remote showing important buttons. (5)
- 3 State the design objectives, design constraints and design function of the fire extinguisher given below. (5)



- 4 List at least 10 standard parts that are commonly used in a completed residential building. (5)

- 5 Sketch an attachment for a blackboard in a class room for placing the chalks and the remote of the LCD projector securely. (5)
- 6 Identify the design for X of the following roofing materials. Justify your answer. (5)
- i) Tiles ii) Sheets iii) Concrete



- 7 Bring out the features of user centered design and Product centered design with the help of examples for each. (5)
- 8 How modular design is realized in a bicycle? Draw the different modules involved in this product. (5)

### PART B

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

- 9 Modify the design of the conventional umbrella so that the below mentioned problems can be solved. (5)
- a) The floor becomes wet once you close the umbrella and put it on the floor after a rain. (5)
- b) Opening of umbrella in a crowd can hurt people. (5)
- 10 Bring out 2 design changes that will increase the value in case of a waste bin. (10)
- 11 Over years, lot of workers have met with accidents while doing electrical maintenance works as part of their job in KSEB. (6)
- a) Prepare a questionnaire to be distributed among the employees of KSEB to find out the main reason behind these accidents. (4)
- b) Assuming that attempting to work on a live line unknowingly is the main reason, suggest a possible solution to avoid such type of accidents. The solution may be explained with the help of layout/ block diagram /sketches.

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