



Reg No.: _____

Name: _____

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

PART A

Answer any 6 questions, each carries 5 marks

- 1 You are asked to design a water bottle for primary school children. Describe the design objectives, constraints and functions in the design process. (5)
- 2 Prepare a questionnaire for market survey that you propose to do for a modified design for a pen stand. (5)
- 3 Describe the factors to be considered for the material selection in the design of an umbrella. (5)
- 4 Describe the role of prototyping in engineering the design of a car. (5)
- 5 'Design for recycling is the need of the hour'. Illustrate the concept. (5)
- 6 Differentiate between product centred and user centred designs in the case of a website. (5)
- 7 Identify the different modules inside an automobile. (5)
- 8 How does standardization of components improve designs? List out some standard components in a bicycle and draw any two of them. (5)

PART B

Answer any two full questions, each carries 10 marks

- 9 a) Mention any three limitations of the sleeper class coaches of the Indian Railways. Modify the design of coaches to rectify these issues. (6)
- b) You are planning to ride a bicycle by connecting a motor with it. Prepare a design drawing for it. (4)
- 10 a) In certain situations, users require extra length for their mobile charger cable. But (6)

offering extra cable length becomes an issue while normal usage. Develop a design to effectively solve this problem. Also give the objectives and constraints of your design.

b) Implement value engineering concepts to solve the food waste problems in hotels and restaurants. (4)

11 a) Design a study table for school children on the basis of design for (i) Manufacture (ii) Assembly and disassembly (iii) Safety? (6)

b) Describe the role of colours in the design of any two products. (4)

PART B

Answer any two full questions, each carries 10 marks

- 1) (a) Mention any three limitations of the sleeper class coaches of the Indian Railways. (3)
- (b) Mention the design of coaches to rectify these issues. (4)
- 2) (a) You are planning to ride a bicycle by connecting a motor with it. Prepare a design drawing for a bicycle. (4)
- (b) In certain situations, users require extra length for their mobile charger cable. How (4)