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10MA835

Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Engineering System Design

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART - A

1 a. Distinguish between designing and engineering. **(07 Marks)**
b. Bring out early developments and evolution that have taken place in television. **(08 Marks)**
c. Explain the iterative cycle of design process with example **(05 Marks)**

2 a. Explain with a flow chart the process of design formulated on the basis of curiosity and the need. **(10 Marks)**
b. Explain how need analysis is carried out. What is the role of specification in need analysis? **(10 Marks)**

3 a. Explain the following with an example: i) Creative attitude ii) Creative process. **(10 Marks)**
b. Briefly discuss the following: i) Mental fixity ii) Creativity by analogy with prior systems. **(10 Marks)**

4 a. Write a note on Synectics? **(08 Marks)**
b. Explain the steps involved in morphological analysis. **(06 Marks)**
c. Explain Analysis of Inter Connected Decision Areas (AIDA). **(06 Marks)**

PART - B

5 a. Draw the design tree for evaluating physical realizability of a conceived design. **(08 Marks)**
b. Explain the concept of economic and financial feasibility. **(06 Marks)**
c. Two design concepts A and B are to be evaluated on the basis of four qualities. The table shows the estimates of performance on a scale of 0 to 10, for each dimension.

Quality Dimensions	Preferences for concept		Weights for quality dimension
	A	B	
Protection	6	8	0.45
Reliability	8	6	0.15
Adaptability	5	8	0.1
Cost	9	5	0.30

Determine the overall utility of design concepts A and B. Suggest which project yields better. **(06 Marks)**

6 Explain any four of the following
a. Design for production b. Design for shipping, handling and installing
c. Design of use d. Design for maintenance
e. Detailed design. **(20 Marks)**

7 a. Explain the reliability of assembled system :
i) Series ii) Parallel iii) Combined system. **(10 Marks)**
b. Write note on : i) Break even analysis ii) Bath tub curve. **(10 Marks)**

8 a. List the factors determining the communication from machine to man. Cost the factors that control the choice of the display. **(10 Marks)**
b. With a suitable sketch and example, explain Man-Machine intraction cycle. **(10 Marks)**

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