Total No. of Questions – [08] Paper Code] Total No. of Printed Pages **02**

G.R. No.	

U359-115(ESE) Civil U359-125(ESE)Comp
U359-145(ESE) IT U359-155(ESE) Mech
U359-135(ESE)E&TC

DECEMBER 2019/ENDSEM

T. Y. B. TECH. (MECHANICAL) (SEMESTER - I)

COURSE NAME: PRODUCT DESIGN AND ENGINEERING

COURSE CODE: IE31175ME

(PATTERN 2017)

Time: [**2 Hours**] [Max. Marks: **50**]

(*) Instructions to candidates:
1) **Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) a) Explain in details the different stages of product development process. [6 marks]

OR

b) Explain in details the different activities of concept development process. [6 marks]

Q.2) a) Elaborate on five-step method of concept generation. [6 marks]

OR

b) Explain in details the procedure of concept testing. [6 marks]

Q.3) a) Name and elaborate conceptual aspects of analyzing creativity methods. [6 marks]

OR

b) Explain 3 selected creativity methods in design (inspiration card workshop, fictional enquiry and extreme characters). [6 marks]

Q.4) a) What is theoretical part? Discuss two methods of calculating Design Assembly efficiency. [4 marks]

OR

b) Give 4 examples of Material guidelines. [4 marks]

Q. 5) a) Explain the steps of planning for prototypes.

[6 marks]

b) Define Comprehensive and Focused prototypes with suitable examples of each.

[4 marks]

c) Write down the list of principles for choosing a prototype.

[4 marks]

OR

Q.6) a) Explain in details use/purpose of prototyping.

[6 marks]

b) Give examples of Analytical and Physical prototypes.

[4 marks]

c) Explain alpha and beta types of prototypes.

[4 marks]

Q.7) a) Explain in details the method of writing a Test plan.

[6 marks]

b) Calculate the effective rate of yearly return in annual compounding for P=1, n=1, i=12% per year.

[4 marks]

c) Define test deliverable and write the test deliverables before, during and after the testing.

[4 marks]

OR

Q.8) a) What do we measure in a benchmark test?

[6 marks]

b) How long will it take money to triple if it is compounded annually at a rate of 12 % per year?

[4 marks]

c) Explain reliability goal in the context of product design by giving a suitable example.

[4 marks]

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