ME/Sem I/CBCGS/MECH CAD/CAM/ND-18/7-12-2018

(03 Hours) Max. Marks: 80

N.B.: 1) Question No. 1 is compulsory.
2) Attempt any three questions from the remaining five questions.
3) Assume suitable data if necessary
4) Figures to the right indicate full marks.

Q. 1 Write notes on Any Four. (20)
a) Stereo lithography
b) Intellectual Property Act
b) Design of Experiments
c) Generic benchmarking
d) Product Life Cycle
e) Reverse Engineering

Q.2 a) What do you mean by product design? Explain various product development approaches with suitable examples. (10)

b) How fuzzy logic approach is used for material selection with multi criteria? Explain. (10)

Q.3 a) What is material property chart? Explain a) The Modulus Density Chart, b) The strength – density chart. (10)

b) Define design for manufacturing (DFM)? Explain DFM Methodology. (10)

Q.4 a) Define value engineering. List various value engineering techniques. Discuss the process to value a product with an example. (10)

b) Define FMEA. Explain in detail the process of FMEA. (10)

Q.5 a) What is Assembly Modelling? Explain top-down and bottom-up approaches of AM. (10)

b) Define inflation and time value of money. How does both affect the economics of product development? (10)

Q.6 a) Why material selection is an important decision? Explain four steps in material selection strategy. (10)

b) A company purchased a machine for Rs.15000. It paid shipping cost of Rs.100 and non-recurring installation costs amounting to rs.1200. At the end of 3 years, the company has no further use of the machine, so it spent Rs.500 for dismantling and sold the same at Rs.1500.
i) Calculate the total investment cost and sunk cost of the machine at the end of 3 years?
ii) The company has depreciated the machine on straight line basis, using an estimated life of 5 years, and Rs.1000 salvage value. By what amount did the recovered depreciation fall to cover the actual depreciation? (10)

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