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Total Number of Pages : 01

B.Tech.
PCME4401

7th Semester Regular / Back Examination 2017-18

Product Design and Production Tooling

BRANCH : MECH

Time : 3 Hours

Max Marks : 70

Q.CODE : B274

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1** Answer the following questions : (2 x 10)
- a) Differentiate the product design by evolution and by innovation.
 - b) Name the components of gating system.
 - c) Briefly discuss about product specification.
 - d) What are the constituent of cost estimation?
 - e) Define draft in forging and why it is provided?
 - f) Differentiate the closed and open die forging processes.
 - g) What is "pilot" and what is its function?
 - h) What are form tools?
 - i) What is meant by "locating" and "clamping" a work piece?
 - j) Differentiate between cutting die and forming die.
- Q2** Describe the requirement, location and types of riser with relative advantages and disadvantages. Also explain the consideration to design a riser and derive the formula to obtained riser size by two different methods. (10)
- Q3** a) Explain in detail about the design considerations for designing a good product. (5)
- b) Discuss the role of computer in different phases of product design. (5)
- Q4** A steel cup of height 30mm and internal diameter 40mm with a flanged width of 10mm is to be deep drawn from a sheet 1mm thick. Determine the diameter of the blank and the drawing force. What is the draw ration? Can the cup be drawn in a single operation? (10)
- Q5** a) Explain the basic steps for design of flash and gutter. (5)
- b) Describe the rules for use in forging machine practice to produce defect free forging. (5)
- Q6** State and explain in detail the six point location principle with help of suitable sketch and example. (10)
- Q7** a) Explain in detail various steps to be followed in process planning. (6)
- b) Sketch the tooth shape of a broach and write briefly about its elements. (4)
- Q8** Write short notes on any TWO : (5 x 2)
- a) Strip layout
 - b) Value analysis
 - c) Turret lathes