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Total number of printed pages – 2

B. Tech
PCME 4401

Seventh Semester Back Examination – 2014
PRODUCT DESIGN AND PRODUCTION TOOLING
BRANCH : MECH

QUESTION CODE : L 202

Full Marks – 70

Time : 3 Hours



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

1. Answer the following questions : 2 × 10
 - (a) Define the product design by innovation with one suitable example.
 - (b) Differentiate pressurised and unpressurised gating systems.
 - (c) What are the different factors consider in value analysis ?
 - (d) Why the position of parting line is so important ?
 - (e) Differentiate blanking die and piercing die.
 - (f) What is 'stock stop' and 'pilot'
 - (g) What is meant by 'locating' and 'clamping' a work piece ?
 - (h) List the type of drill bushes.
 - (i) Name the main factors in cost estimating.
 - (j) What is the function of mounting elements of a cutting tool ?
2.
 - (a) What do you mean by product specification ? What are the components of it ? Briefly explain the components. 5
 - (b) Describe the role of computer in product design process. 5
3.
 - (a) Explain the basic rules for the die design for upset forging. 6
 - (b) What is preform ? Why it is needed ? What is its advantages ? 4

P.T.O.

4. Describe in detail with neat diagram the components of a gating system. 10
5. (a) Why more than one draw is needed to draw a cup ? 3
(b) A hole of 60 mm diameter is to be produced in steel plate 2.5 mm thick. The ultimate shear strength of the plate material is 450 N/mm^2 . If the punching force is to be reduced to half of the force using a punch without shear, estimate the amount of shear on the punch. Take percentage penetration as 40%. 7
6. Write the important points to watch in respect of clamping. How should clamps be disposed of with respect to location points ? 10
7. (a) Discuss various steps in process planning. 5
(b) Explain the various elements of a single point cutting tool with the help of neat diagram. 5
8. Write short notes on any **two** : 5 × 2
(a) Indexing type drilling jig
(b) Stripper
(c) Deep drawing operation.

