Total No. of Questions :5] *[Total No. of Printed Pages :2*

Roll No .....

AU/IP/IEM/ME/PR - 302

B.E. III Semester

Examination, June 2016

Production Process

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Why does edge cracking defect occur in rolling product?
   b) Build up dimensions of 23.258 using set of 45 pieces slipgauge.
   c) Explain the terms 'clearance' and 'tolerance' with respect to the mating conditions of a shaft and a hole.
   d) Explain the rolling of different structural sections with neat sketches.

   OR

   State and explain the 'Taylor's' principle for gauge design.

2. a) What is machinability index?
   b) State the Taylor's tool life equation.
   c) What do you understand by term 'tool signature'? Support with suitable example.
   d) Explain single point cutting tool with three views. Showing cutting edges and angles.

   OR

Prove that $\phi = \tan^{-1}\left[\frac{r\cos\alpha}{1-r\sin\alpha}\right]$ Where ϕ is angle of shear and α is back rake angle of cutting tool.

3. a) What is the purpose of a core?
   b) What is a skin-dried mould?
   c) Sketch and describe the use and advantage of a gated pattern.
   d) How is a cupola specified and its thermal efficiency is determined?

   OR

   Write the different stages involved in Lost-wax moulding process.

4. a) Define forgeability.
   b) How a press is specified?
   c) A 20mm square hole is to be cut in sheet of 0.75mm thickness. The shear stress allowed 2880kg/cm^2 determine the cutting force required. Assume the value of k is 1.3.
   d) Explain the different elements of a die-set with suitable sketches.

   OR

   Sketch and describe the board drop hammer used in drop forging.

5. a) Define weldability.
   b) Name the types of welding on the basis of metallurgical aspects.
   c) Why lubrication is used in spinning? Name different lubricants used in this process.
   d) Classify different welding positions in gas welding.

   OR

   Explain the TIG welding. Give the advantages, limitations and applications of TIG welding.

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