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

Roll No .....

AU/IP/IEM/ME/PR-302

B.E. III Semester

Examination, December 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 question 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) Explain sine centre.
   b) Define angle of bite in rolling.
   c) State Taylor's principle in design of limit gauges.
   d) What are the slip gauges? Why they are needed? Discuss different grades of accuracy of slip gauges.

OR

Explain the defects occurred in rolled product.

2. a) Define the term tool life.
   b) What is machinability index?
   c) Explain methods of metal cutting.
   d) Explain single point cutting tool with three views. Showing various cutting edges and angles.

OR

Derive the following relation for shear angle (ϕ)

$$\phi = \tan^{-1}\left[\frac{r\cos\alpha}{1-r\sin\alpha}\right]$$

where r = chip thickness ratio

α = back rake angle of cutting tool

3. a) Name any four types of moulding sand.
   b) What is negative allowance in pattern? Explain.
   c) What are the factors which govern the selection of a proper material for pattern-making?
   d) Step by step, describe the complete procedure of investment casting.

OR

Make a neat cross sectional sketch of a cupola, indicating its various zones.

4. a) Define forgeability.
   b) Explain blanking operation in press work.
   c) Compare the forging operation with machining and casting process.
   d) Describe in brief drop hammers with neat sketch.

OR

The number of draws, are three, if a cup of 8cm height and 4cm diameter is to be made from steel metal sheet 3mm thick. Determine the diameter at different stages of redraw. Assume reduction in 1st, 2nd and 3rd draw are 47%, 23% and 17% respectively.

5. a) Give the reactions involved in thermit welding with their temperature produced.
   b) Write the weld symbols of Fillet weld, Spot weld, Square weld and Seam weld.
   c) Explain seam resistance welding with suitable sketch.
   d) Write short note on spinning.

OR

Explain the process of Oxy-fuel gas cutting.

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