Name: Entry No: Group No:

MEL 120 MANUFACTURING PRACTICES
Major Test (01-12-2006, 10.30 a.m. – 12.30 p.m.)

Time: 120 minutes Max. Marks: 100

Note:

1. Write your name, entry no. and group no. in the space provided at the top of each page.
2. This question paper contains FIVE pages and 9 questions. Please check before answering.
3. Be brief and specific in your answers. Draw suitable sketches wherever required.

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1. Write whether the following statements are true or false and **justify your answer in one sentence.** (20)

   a) Engineering stress is same as true stress.

   b) The diameter and height of riser in sand casting should be such that it solidifies in the beginning.

   c) In centrifugal casting, both pattern and mould are expendables.

   d) Flash is not an essential feature of closed die forging process.

   e) Maximum reduction in one pass is unlimited in cold working processes.

   f) Welding of Al is very easy being the low melting point material and can be done by gas welding.

   g) In Electro Chemical Machining (ECM) tool wear is more than in Electric Discharge Machining (EDM).

   h) Single point cutting tool produces better surface finish as compared to multipoint cutting tool.

   i) Cast iron is machined by positive rake angle tools.

   j) Compression molding process is popular for molding thermosets.

2. Name the principal effects of following alloying elements in alloy steel. (10)

a) Chromium

b) Copper

c) Molybdenum

d) Silicon

e) Nickel

3. Draw a labeled sketch and discuss investment casting process. Give advantage and limitations of the process also. (10)

Name: Entry No: Group No:

4. Give the main difference(s) between the following: (15)

a) Straight and reverse polarity in arc welding

b) Thermosetting and thermoplastic materials

c) Forward and backward extrusion

d) Soft and hard grinding wheels

e) Measurement and inspection

5. Give the requirements of cutting tool materials and also give three examples of advanced cutting tool materials with their capabilities. (9)

6. What is the mechanism of material removal in the following processes? Give one important advantage, limitation and application of each process. (10)

	EDM (Electric Discharge Machining)	ECM (Electrochemical Machining)
Mechanism of material removal		
Advantage		
Limitation		
Application		

Name: Entry No: Group No:

7. Draw a self-explanatory sketch to explain injection-molding cycle **or** shell molding process. Label each step clearly. (10)

8. Explain the principle of deep drawing with labeled sketch and give two applications. (8)

9. (a) Define accuracy and precision of a measuring instrument (8)
(b) How do you measure cylindricity of a turned job by using dial gauge? Make labeled sketch to support your answer.

(Answer on the back of this page)