

**B.Tech. MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)**

**BTCLEVI/BTMEVI/BTELVI/BTCSVI/BTECVI
Term-End Examination**

June, 2017

00254

BME-003 : MANUFACTURING TECHNOLOGY

Time : 3 hours

Maximum Marks : 70

Note : Answer any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.

1. (a) Explain how the shape and size of the sand grains affect the properties of moulding sand.
- (b) With a neat sketch, describe the constructional features of a cupola. 5+5
2. With the help of a neat sketch, describe centrifugal casting. What are its types ? Write its advantages, disadvantages and applications. 10

3. (a) Explain the principle of Gas Tungsten Arc Welding process. Also write its applications.
- (b) Differentiate between melting and fusion. What is necessary to get a sound weld? 5+5
4. (a) Discuss the various defects obtained during deep drawing operation. List the factors responsible for these defects. 42500
- (b) What are the advantages and disadvantages of hot working process? 5+5
5. What is tool signature? Sketch a single-point cutting tool showing its different parts. Also show the various angles in the sketch. 10
6. (a) Define trimming, piercing, notching, nibbling and blanking.
- (b) How are sheet metal forming processes classified? 5+5
7. (a) With the help of stress-strain diagram for a mild steel, differentiate between true strain and engineering strain.
- (b) Discuss the advantages and limitations of the permanent mould over expandable mould. 5+5

8. A mild steel component is being machined at a cutting speed of 200 m/min with a tool rake angle of 10° . The widths of cut and uncut thicknesses are 2 mm and 0.2 mm respectively. If the average value of coefficient of friction between the tool and the chip is 0.5 and the shear stress of the component material is 400 N/mm^2 , determine the

(a) shear angle, and

(b) cutting and thrust components of the machining force.

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