Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(AE) (2011 Onwards) (Sem.–3)

# MANUFACTURING PROCESSES

Subject Code : BTAE-304

Paper ID : [A1149]

Time : 3 Hrs. Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

## SECTION - A

**1. Write briefly :**

(a) What is Rake Angle?

(b) Briefly describe the boring process.

(c) What is the function of a core print?

(d) What are the major properties required of cutting tool materials?

(e) What is the purpose of a riser in metal casting?

(f) List the various functions of cutting fluids.

(g) Explain the term weldability.

(h) What is an abrasive?

(i) Why is tungsten the preferred material for non-consumable electrodes?

(j) What is purpose of dielectric in electric discharge machining?

## SECTION - B

2. Describe the step-by-step procedure of investment casting.

3. What is broaching process? Describe the features of a broach and explain their functions.

4. What are the advantages of electron beam welding over arc welding? Give specific applications of electron beam welding process.

5. What is the principle of resistance welding? List down the various resistance welding processes and explain any one of them in detail.

6. Describe the differences between extrusion and drawing. What do you mean by a dead-metal zone in the extrusion process?

## SECTION - C

7. Explain any five casting defects. Clearly mention the causes and remedies of all these defects.

8. (a) What are the various types of coolants that are used in the machining process? Discuss the relative merits and demerits of each type of coolant.

   (b) Describe the principle, operation and process capabilities of submerged arc welding process.

9. Write short notes on :

   (i) Shell mould casting

   (ii) Abrasive flow machining