

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 2103**

Roll No.

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**B.Tech.**

**(SEMESTER-V) THEORY EXAMINATION, 2012-13**

**MANUFACTURING SCIENCE – II**

**Time : 3 Hours ]**

**[ Total Marks : 100**

**Section – A**

1. Attempt **all** question parts : **10 × 2 = 20**
- Define machine tool.
  - What do you understand by tool life ?
  - Name important parts of lathe.
  - Name various work holding devices.
  - What is indexing ? Mention various indexing methods.
  - Mention four advantages of grinding over other metal removal by cutting tools.
  - What do you understand by the term interchangeability and tolerance ?
  - Name the functions of flux.
  - What do you understand by straight and reverse polarity ?
  - Mention the advantages of unconventional machining over conventional machining.

**Section – B**

2. Attempt any **three** question parts : **10 × 3 = 30**
- Write a note on Machining characteristics.
    - Write a note on types of chips with relevant sketches.
  - Explain the tool layout for producing a hexagonal bolt on a Capstan Lathe with various stages involved in producing the bolt.
  - Write short notes on :
    - Grade and Structure
    - Grain size and type of bond
  - Explain with neat sketch the Atomic Hydrogen welding process.
  - Explain the Laser Beam Machining process.

Section – C

- Attempt **all** questions. 10 × 5 = 50
3. Attempt any **two** parts : 5 × 2 = 10
- (a) The total life for a HSS tool is expressed by the relation  $VT^{1/7} = C_1$  and for Tungsten Carbide  $VT^{1/5} = C_2$ . If the tool life for a cutting speed of 24 m/min is 128 min., compare the life of the two tools at a speed of 30 m/min.
- (b) Explain with relevant sketches Reaming and Counter boring process.
- (c) Explain the principle of Centreless grinding process.
4. Attempt any **one** part : 10 × 1 = 10
- (a) Explain Tungsten Inert gas welding process.
- (b) Explain Ultrasonic welding process.
5. Attempt any **one** part : 10 × 1 = 10
- (a) Write a short note on dressing and truing in case of grinding wheel.
- (b) Explain Crank Slotted link Quick return motion Mechanism with neat sketch for shaping machine.
6. Attempt any **one** part : 10 × 1 = 10
- (a) Explain open and cross belt drive mechanism for a Double housing planner with neat sketch.
- (b) Explain with relevant sketches the Abrasive Jet Machining.
7. Attempt any **two** parts : 5 × 2 = 10
- (a) Write a note on zones of heat generation in metal cutting.
- (b) Explain simple indexing method for milling operation.
- (c) Mention the properties of cutting fluids.