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

PAPER ID : 2103   Roll No. ☐☐☐☐☐☐☐☐☐☐

B.Tech.

(SEMESTER-V) THEORY EXAMINATION, 2012-13

MANUFACTURING SCIENCE – II

Time : 3 Hours]   *[Total Marks : 100*

Section – A

1. Attempt **all** question parts : $10 \times 2 = 20$

    (a) Define machine tool.

    (b) What do you understand by tool life ?

    (c) Name important parts of lathe.

    (d) Name various work holding devices.

    (e) What is indexing ? Mention various indexing methods.

    (f) Mention four advantages of grinding over other metal removal by cutting tools.

    (g) What do you understand by the term interchangeability and tolerance ?

    (h) Name the functions of flux.

    (i) What do you understand by straight and reverse polarity ?

    (j) Mention the advantages of unconventional machining over conventional machining.

Section – B

2. Attempt any **three** question parts : $10 \times 3 = 30$

    (a) (i) Write a note on Machining characteristics.

         (ii) Write a note on types of chips with relevant sketches.

    (b) Explain the tool layout for producing a hexagonal bolt on a Capstan Lathe with various stages involved in producing the bolt.

    (c) Write short notes on :

         (i) Grade and Structure

         (ii) Grain size and type of bond

    (d) Explain with neat sketch the Atomic Hydrogen welding process.

    (e) Explain the Laser Beam Machining process.

Section – C

3.   Attempt any **two** parts : $5 \times 2 = 10$

    (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 : $10 \times 1 = 10$

    (a)   Explain Tungsten Inert gas welding process.

    (b)   Explain Ultrasonic welding process.

5.   Attempt any **one** part : $10 \times 1 = 10$

    (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 : $10 \times 1 = 10$

    (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 : $5 \times 2 = 10$

    (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.

_____