

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

PAPER ID : 4302

Roll No.

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B. Tech.

(Semester-I) Theory Examination, 2011-12

MANUFACTURING PROCESSES

Time : 2 Hours]

[Total Marks : 50

- Note : (i) Attempt questions from each Section.
(ii) Be precise and scientific in writing.

Section-A

1. Attempt *all* parts : 1×10=10
- (a) Write the major difference between toughness and hardness of a material.
 - (b) What is the basic aim of tempering ?
 - (c) List four hot working processes.
 - (d) Define Gating ratio.
 - (e) List four important casting defects.
 - (f) How lathe size is specified ?
 - (g) What is HAZ ?
 - (h) Write the composition and percentage of alloying elements present in Brass and Bronze.

- (i) Write two differences between Soldering and Brazing.
- (j) Define Production and Productivity.

Section-B

2. Attempt any *three* parts : 5×3=15

- (a) Explain the following terms :
- (i) Resilience
 - (ii) Fatigue
 - (iii) Strength
 - (iv) Stiffness
 - (v) Ductile Fracture.
- (b) Differentiate between normalizing and annealing in terms of the process and nature of the product.
- (c) List the advantages of forging of metals. Why is press forging preferred over hammer forging process.
- (d) How does a shaper differ from a planar in terms of their operation and type of work pieces ?
- (e) Write short notes on the following :
- (i) Powder Metallurgy
 - (ii) Pre-sintering.

Section-C

Attempt *all* questions :

5×5=25

3. What are high speed steels ? What are the principal alloying elements in them ? Describe their properties in brief.

Or

State the difference between steel and cast iron with respect to their composition, tensile strength, hardness and toughness.

4. Describe the various types of pattern. Write the pattern allowances. How do pattern differ from casting ?

Or

Draw a neat sketch of die-punch assembly with accessory parts or components. Explain how cutting operations such as blanking or piercing differ from deep drawing operations.

5. With the help of a suitable sketch, describe the geometry of a twist drill and also explain how drill sizes are designated.

Or

Draw the different types of flames used in gas welding. How would you identify these flames? What are the specific uses of each of these flames?

6. Mention advantages, disadvantages and applications of powder metallurgy. Describe briefly each step involved in powder metallurgy manufacturing processes.

Or

Explain briefly about the different types of plant layout. Write the various factors effecting plant layout.

7. What is a gating system? Explain briefly about the different components of gating system.

Or

Define milling. What are the various work-holding devices used in milling? Explain their relative applications.