

Manufacturing Processes–1 (2K3)
(PE-209, Dec. 2005)

Time: 3 Hours

Max. Marks: 60

Note: Question No. 1 is compulsory. Attempt any four questions from section B and two questions from section C.

Section-A

1. (a) State the advantage of metal casting.
(b) Differentiate between pattern and casting.
(c) Define welding process. State one practical application of welding.
(d) How will you specify the filler material? Explain.
(e) Draw a simple diagram for neutral flame used in gas cutting operation showing inner cone and indicate the color of the inner core.
(f) Write the equipment used for oxyacetylene welding.
(g) Define the term cleaning and finishing of casting. Why it is necessary?
(h) State the functions of core.
(i) Classify electrode in details.
(j) Differentiate between upset and flash welding.

Section-B

2. (a) Write the name of different materials used for making the pattern and state their applications. State the advantages of metal pattern over wooden pattern.
3. (a) What is allowance? Why it is provided in casting?
(b) Steel casting is to be produced from a brass pattern, which is to be made from a wooden pattern. If one dimension of the component part as taken from its drawing is 75 mm. calculate the correct dimension on the wooden pattern considering the shrinkage allowance only. Taking shrinkage allowance for brass 15.3 mm/m and steel 20.8 mm/m.
4. (a) Explain the principle of thermit welding.
(b) Describe projection welding with suitable sketch.
5. Explain arc-welding processes. Write short notes on (a) Brazing (b) Soldering
6. Draw a suitable sketch and explain submerged arc welding process. State its limitations.

Section-C

7. (a) Explain the following welding defects, their causes and remedies: (i) incomplete fusion (ii) Weld crack (iii) Erratic weld deposition
(b) Define welding defects.
8. (a) State the inspection procedure of casting.
(b) Explain the following casting defects, their causes and remedies: (i) Blow holes (b) Scab (c) Pin holes
9. (a) Write short notes with the help of suitable sketches: (i) MIG Welding (b) Permanent mould casting
(c) Atomic hydrogen welding
(b) What is flame cutting?