

2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS
PRODUCTION TECHNOLOGY-I
(MECHANICAL ENGINEERING AND PRODUCTION ENGINEERING)

APRIL/MAY 2005

TIME – 3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) With the help of neat sketch describe the process of true centrifugal casting.
(b) Describe in detail the process of producing components by low pressure casting. [8+8]
(c) How are the different types of binders used in foundry sand classified? Explain their utility in brief.
2. (a) Show by sketches the various roll arrangements used in rolling mills.
(b) Explain the commonly used cold working processes.
(c) Describe the following processes with their specific uses and limitations:
i. Cold drawing
ii. Cold-bending and
iii. Cold-heading and rotary swaging [6+10]
3. (a) Explain the various basic available ways of metal extrusion.
(b) Explain the various heat treatment-operations performed on forgings. [8+8]
(c) State and describe high-energy-rate forging. For what type of work would you buy a HERF machine.
4. (a) What are the functions of coating on shielded electrodes?
(b) What are principles of resistance welding? Describe:
i. Upset-butt, and
ii. Flash-butt welding giving their relative merits and limitations [6+10]
(c) State the principle of flame cutting. Explain various methods of flame-cutting.
5. (a) Distinguish between high pressure laminating and low pressure laminating processes.
(b) What are plastics? Explain polymerization.
(c) How does extrusion differ from injection moulding in plastic processing. [4+6+6]
6. (a) List and discuss the advantages and limitations of powder metallurgy process.
(b) Compare forged part and a cast part in relation to mechanical properties.
(c) Describe the operation of cupola with neat sketch. [8+8]

7. Distinguish any FOUR of the following:

- (a) Slush moulding and calendaring.
- (b) Runner and Riser.
- (c) Plasma arc and submerged arc welding.
- (d) Smithing and forging.
- (e) Hot and cold spinning. P[4*4]

8. Write short note on any FOUR of the following:

- (a) Mould hardness test
- (b) Rotary swaging
- (c) Thermoplastics
- (d) Manufacture of metal powders
- (e) Extrusion used for S.I. engine. hit . [4*4]

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