

Special Examinations, 2012  
BASIC MANUFACTURING PROCESS  
Full Marks: 70  
Time: 3 Hours

Answer six questions including question No.1 which is compulsory  
Figures in the right hand margin indicate marks

Q1 Answer the followings 2x10

- a) Differentiate between pattern and casting.
- b) Explain the role of runner extension in a gating design .
- c) What do you mean by hot tears?
- d) What is DCEN and DCEP?
- e) Explain why in MIG a constant voltage type power source is normally used.
- f) What is the principle of resistance welding?
- g) Name an extrusion process by which a toothpaste tube can be produced.
- h) What is the effect of neutral point on the rolling operation?
- i) What do you understand by friction hill?
- j) Explain the sintering process used in powder metallurgy.

Q2

- a) Explain how patterns are classified. (5)
- b) Explain the NRL method used in the design of risers. (5)

Q3

- a) What is directional solidification? Differentiate between progressive and lateral solidification. (5)
- b) Discuss the principle and types of centrifugal casting processes. (5)

Q4

- a) What are the flames produced in gas welding. Differentiate between oxy-acetylene welding and oxygen cutting. (5)
- b) Describe different modes of metal transfer in arc welding. (5)

Q5

a) With neat sketches explain the TIG and MIG systems of arc welding. Give applications of each. (5)

b) Explain how a tube can be manufactured from sheet by resistance welding process. (5)

Q6

a) With the help of neat sketch explain the principle and working of rolling process. Find an expression for rolling load. (6)

b) List the different stages in the drop forging process in production of a component such as a spanner. (4)

Q7

a) Show by schematic sketches the process of forward and backward extrusion and mention any three parameters which affect the processes. (4)

b) What are the criteria which regulate the draw die radius and punch radius in a deep drawing operation? (4)

c) Draw a neat sketch of a progressive die used for the production of a washer. (2)

Q8. Write short notes on any two (5x2)

a) Brazing and soldering

b) Explosive forming

c) Precision investment casting.