

“Please check whether you have got the right question paper.”

- i) Q. No 1 & 6 are compulsory.
- ii) Solve any two from the remaining question in section A and two from section B.
- iii) Draw neat sketches wherever necessary and assume suitable data wherever necessary.

SECTION-A

- Q.1 Solve any five from the following. 10
- 1) What is the difference between a pattern and a core box?
  - 2) What are the types of sands and sand additives?
  - 3) What are the defects in casting?
  - 4) What is the difference between cold and hot working?
  - 5) Name the different hot working & cold working processes.
  - 6) What is embossing?
  - 7) What are the different joints used in sheet metal working?
  - 8) Where do we use roll bending? Explain in short.
  - 9) What is a press tool?
  - 10) List the different furnaces used in melting of metals.
- Q.2 a) What are the essential properties of the moulding sands? How are the moulding sand tested? Explain the methods of testing in brief. 08
- b) What is the need of testing of casting? What are the methods adopted for testing of castings. 07
- Q.3 a) With neat sketch explain the construction and working of induction furnace. 08
- b) With neat sketch explain investment casting. 07
- Q.4 a) List the different hot working processes and explain with neat sketch hot spinning. 08
- b) What are the different types of power hammer used in hot forging? Explain in brief the advantages & disadvantages of machine forging. 07
- Q.5 a) With neat sketches explain the mechanisms used in the mechanical presses used in sheet metal working. 08
- b) Explain the difference between. 07
- i) Slitting and shearing
  - ii) Punching and piercing
  - iii) Blanking and punching

SECTION-B

- Q.6 Solve any five from the following 10
- 1) What is the difference between thermoplastics and thermo setting plastics.
  - 2) What is FRP? Where can this be used.
  - 3) Explain in brief compression moulding of plastics.
  - 4) What is gas cutting? Where is it used?
  - 5) Name the safety equipments used in arc welding.
  - 6) What is the principle of friction welding?
  - 7) Name the welding defects.
  - 8) What is the use of surface coating?
  - 9) What is metal coating? Name a few applications.
  - 10) What are the fluxes used in welding?

- Q.7 a) With neat sketch explain extrusion moulding in plastics. State its advantages, limitations and applications. 08  
b) With neat sketch explain a plastic moulding die. What is ejection mechanism & why is it used? 07
- Q.8 a) With neat sketch explain the arrangement used in submerged arc welding. Explain its working stating the advantages, disadvantages and applications. 08  
b) What are the methods of inspection of welding? Explain any two non destructive tools used in welding. 07
- Q.9 a) With neat sketch explain the construction and working of spot welding. State its advantages, disadvantages and applications. 08  
b) What is the role of filler metal fluxes & shielding gas in arc welding? Give examples of each of them and processes in which they are used. 07
- Q.10 a) What are the different types of surface coatings done on the engineering products? Why are they necessary? Explain in detail powder coating. 08  
b) What are the methods of metal spraying? Explain in detail one metal spraying process. 07