Reg. No. : | | | | | | | | | | |

Question Paper Code: 31072

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2015.

Third Semester

Mechanical Engineering

01UME302 - MANUFACTURING TECHNOLOGY - I

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. List some of the common types of casting defects, which are normally detected only after cleaning.
2. What is the principle employed in precision investment casting?
3. List the five different methods of brazing.
4. Draw three types of welding flame and indicate the zones.
5. Write a short note on “Backward Extrusion” process.
6. List down the various steps involved in drop forging.
7. What is the working principle of magnetic pulse forming?
8. Differentiate between piercing and blanking.
9. How do thermoplastics differ from thermo-setting plastics?
10. Name the factors that influence the accuracy to which plastic parts can be moulded.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Describe briefly the CO_2 method of making cores and list some of its advantages. (8)

(ii) How do you select proper speed in centrifugal casting? Explain briefly. (8)

Or

(b) (i) Draw a neat diagram of a cupola furnace, indicate important parts and show various stages. (12)

(ii) Mention any three advantages and limitations of continuous casting. (4)

12. (a) (i) Why is it difficult to start AC arc? How is it simplified in practice? (4)

(ii) What are the basic differences between arc welding and submerged arc welding? (6)

(iii) Write short notes on "Thermal Welding" (6)

Or

(b) (i) Which gases are used for welding the following materials by Metal Inert Gas welding process? (5)

1. Steel
2. Copper or aluminum
3. Stainless steel
4. Titanium
5. Copper-nickel and high-nickel alloys

(ii) Why is laser welding used only for micro-welding applications? (2)

(iii) Describe the brazing operation used to braze (9)

1. Two pieces of steel
2. Cast iron
3. Carbide tip to a steel shank

13. (a) (i) Why is it not desirable to provide a blank for drop forging of such size that no flash is produced? Explain the purpose of the flash gutter. Why is it sometimes necessary to trim the flash once or even twice during drop forging? (8)

(ii) What are the usual defects in rolled parts? Also explain different types of rolling mills. (8)

Or

(b) (i) With the help of a neat diagram, explain the forward extrusion process. (8)

(ii) What are the main characteristics of the hot working as compared with cold working processes? (8)

14. (a) Briefly explain the following processes with the help of neat diagrams

(i) Electro hydraulic forming (8)

(ii) Magnetic pulse forming (8)

Or

(b) Briefly explain the following processes with neat diagrams

(i) Hydro forming (8)

(ii) Formability of sheet metal (8)

15. (a) (i) What are the various components which make up a moulding compound for plastics and explain the functions of each? (8)

(ii) Briefly explain the compression moulding process. (8)

Or

(b) (i) Explain briefly transfer moulding process with neat sketch. (8)

(ii) Discuss the characteristic properties of wool four, rag fibres, asbestos and mica and why are these used in moulding plastics? (8)