

B.E./B.TECH. Degree Examination, December 2020

Third Semester

ME16351-Manufacturing Technology

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions**PART A - (8 x 2 = 16 marks)**

1. The primary purpose of a sprue in a casting mould is to
 - (a) feed the casting at a rate consistent with the rate of solidification
 - (b) act as a reservoir for molten metal
 - (c) feed molten metal from the pouring basin to the gate
 - (d) help feed the casting until all solidification takes place
2. Thermit welding is a form of
 - (a) resistance welding
 - (b) gas welding
 - (c) fusion welding
 - (d) arc welding
3. The operation of machining the ends of a workpiece to produce a flat surface square with the axis is
 - (a) taper turning
 - (b) facing
 - (c) boring
 - (d) drilling
4. Fillers is used in plastics to
 - (a) completely fill up the voids created during manufacturing
 - (b) improve plasticity, strength and toughness
 - (c) provide colour, strength and impact resistance
 - (d) to accelerate the condensation and polymerisation
5. Indicate a suitable method to harden large mould and cores without baking in large volumes economically and the principle involved in brief.
6. Specify the three types of flames in oxy-acetylene welding and their suitability to join different materials.
7. Indicate a suitable method to turn short tapers on long jobs using a lathe. Explain briefly.
8. Discuss the important properties of plastics which have made them suitable for large number of engineering uses.

PART B - (4 x 16 = 64 marks)

09. (a) Identify a suitable casting process used for the production of engine blocks made up of grey cast iron economically. Explain the principle involved and the steps involved in detail with neat sketches. **(16)**

(OR)

- (b) Identify a suitable casting process used for the manufacture of carburettor body made up of low melting temperature alloys on a large scale economically. Explain the principle involved and the steps involved in detail with neat sketches indicating their advantages and limitations. **(16)**

10. (a) It is desired to fabricate a leak proof enclosing case (box) made up of mild steel of sheet thickness 12 mm economically. Identify the process and explain the principle involved in it with the help of a neat sketch indicating their advantages and limitations. **(16)**

(OR)

- (b) (i) It is desired to micro weld small wires to electronic devices through an optically transparent material like glass. Suggest a suitable process to fabricate the same with the help of a neat sketch. **(8)**
- (ii) Explain with relevant sketches the various weld defects expected during the fabrication of a part by arc welding and suggest suitable remedies for the same. **(8)**

11. (a) (i) Justify how Up milling is different from Down milling on the basis of various machining parameters. **(8)**
- (ii) Discuss briefly how Capstan or Turret lathe is different from a Centre lathe. **(8)**

(OR)

- (b) It is desired to manufacture dies of complicated shapes with high carbon steels economically. Suggest a suitable process to produce the same with the help of a neat sketch indicating their advantages and limitations. **(16)**

12. (a) (i) Identify a suitable process used for the manufacturing of connecting rod made up of medium carbon steel and the processing steps in detail with neat sketches. **(8)**
- (ii) Identify a suitable process used for the manufacturing of collapsible tubes for containing ointments and pastes out of ductile materials with neat sketches. **(8)**

(OR)

- (b) How the self-lubricated bearings are produced economically. Explain the steps in detail with neat sketches for the above process. Is there any secondary operations need to be performed? Justify your answer. **(16)**