Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

III SEMESTER B. TECH (MECHANICAL ENGG.) END SEMESTER EXAMINATIONS, NOVEMBER 2018

SUBJECT: MANUFACTURING TECHNOLOGY [MME 2105]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	What is the importance of "permeability" in sand mould casting? Explain how it is determined with help of a neat labelled sketch.	**03**
1B.	Lengthy castings have to be produced in bulk. Suggest an appropriate casting technique and explain the same with a sketch.	**03**
1C.	Explain with sketches, how castings can be produced in dies?	**04**
2A.	Recommend a suitable welding method to join parts made of tool steel and explain the same with a sketch.	**03**
2B.	Discuss the characteristics of hot working on metals.	**03**
2C.	Explain a welding technique with a neat sketch that is most suited for conditions given: Thickness of steel plates: **50 mm**; Welding position: **Vertical**; Edge preparation: **Nil**	**04**
3A.	Show the cut profile of a sheared sheet metal and label all the features on it.	**02**
3B.	Which process can be employed to make curtains of thermoplastic material? Explain with a sketch of the setup.	**03**
3C.	With a neat line diagram of the setup, explain how a laser beam is used for machining processes?	**03**
3D.	You are required in an organization to select a suitable grinding wheel for a specific application. How do you do the selection? Discuss briefly the various factors to be considered in the selection of the appropriate wheel.	**02**
4A.	What is the difference in the feeding mechanism of the abrasives in Abrasive jet machining (AJM) and Abrasive water jet machining (AWJM). Discuss in detail.	**03**
4B.	A grinding wheel is designated as **"W-A-46-K-5-V-BE".** Explain the significance of each of the elements of this designation and explain clearly what it stands for?	**03**

4C. A bar stock of 55 mm diameter and 150 mm length is provided, on which a taper for 30 mm length on one of the ends is to be cut. Diameter of the finished component is 50 mm. Larger end diameter of taper is 50 mm and smaller end diameter is 30 mm. Identify a suitable method of taper turning to generate it and calculate the taper angle. Also identify and list down the various operations in the proper sequence in which they are to be performed on a lathe. Briefly explain these operations. **04**

5A. Why do you use dielectric fluid in Electro-discharge machining? What are the major roles played by the dielectric fluid in EDM process? Why the workpiece is completely submerged in the dielectric fluid in EDM? **03**

5B. With neat schematic representation, explain the mechanism of material removal in Electron beam machining? **03**

5C. Divide the circumference of a work-piece into 91 divisions by suitable indexing method. Why did you use that method of indexing? Justify. **04**

Plate No. 1	15	16	17	18	19	20
Plate No. 2	21	23	27	29	31	33
Plate No. 3	37	39	41	43	47	49