Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

III SEMESTER B. TECH (MECHANICAL ENGG.) END SEMESTER

MAKE-UP EXAMINATIONS, DECEMBER 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. Explain Shell mould casting showing various stages schematically. **03**

1B. How castings are produced using centrifugal force? List the characteristics of such technique. **03**

1C. What is meant by “grain finesses number”? How is it determined? Support your explanation with sketch and an example **04**

2A. Explain TIG welding with the help of a neat labelled sketch **03**

2B. Discuss the characteristics of cold working on metals. **03**

2C. Discuss the principle of joining parts by resistance welding. Explain various stages with sketches. **04**

3A. Which process can be employed to make plastic barrels? Explain with a sketch. **02**

3B. Explain spring back associated with bending of sheet metals with stress-strain diagram. **03**

3C. Why do we use electrode in Electro-discharge machining (EDM). Does the profile of the tool/electrode has influence on machining the workpiece? If your answer is “Yes”, elaborate on it. **03**

3D. “Abrasives used in grinding wheels play an important role during grinding”. Do you agree? If yes, explain. What characteristics of the abrasives make them very effective in this machining process? **02**

4A. You have procured a grinding wheel from the market. It has the following information printed on it: **“M-B-80-G-10-S-XX**”. Can you analyze the information provided on the grinding wheel and explain what each letter/character stands for. **03**

4B. Discuss in detail the principle of machining employed in Laser beam machining (LBM) with the help of a suitable set up sketch. **03**

4C. Following figures represent a component manufactured using the lathe. Fig. 4C (i) represents cylindrical bar stock given to you. Fig. 4C (ii) represents the final component. Identify the various lathe operations to be performed and list them in the proper sequence in which they are to be performed. Also explain the above operations with respect to the component to be manufactured. **04**

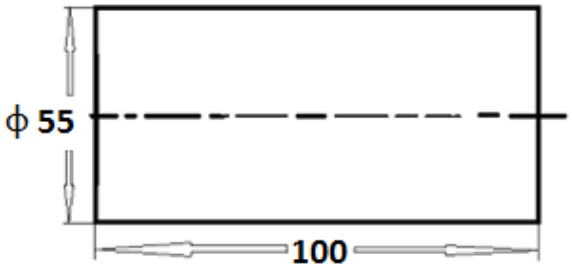

Fig. 4C (i)

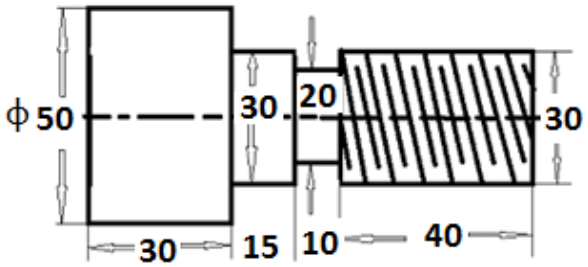

Fig. 4C (ii)

5A. Explain clearly the roles of the following parameters in Abrasive water jet machining. (i) Standoff distance. (ii) Grit size. (iii) Nozzle orifice diameter. (iv) Water pressure. **03**

5B. Identify the non traditional process that employs direct hammering of the abrasive particles into the workpiece by the tool due to the high frequency of vibration of the tool. With a neat line diagram, explain the principle of machining in this process. **03**

5C. Divide the circumference of a work-piece into 99 divisions by suitable indexing method. Why did you use that method of indexing? Justify with reasons. **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