Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

III SEMESTER B.TECH. (MECHANICAL ENGINEERING)

END SEMESTER MAKE UP EXAMINATIONS, DEC 2016/JAN 2017

SUBJECT: MANUFACTURING TECHNOLOGY [MME 2105]

REVISED CREDIT SYSTEM
(04/01/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A.	With neat sketches, explain the following types of patterns: a. Loose piece pattern, b. Match plate pattern, c. Skeleton pattern	**3**
1B.	With neat setup diagrams, explain the strength testing of moulding sand.	**3**
1C.	How do you manufacture insulated (plastic) electric cables? Explain the process employed with the help of a neat schematic representation.	**4**
2A.	Which welding process is used to weld plates in vertical position? Explain with a sketch.	**3**
2B.	Why Tungsten electrode is not consumed in TIG welding? Explain, how the weld is protected from oxidation in TIG welding?	**3**
2C.	Where do you recommend Resistance welding? Explain the principle of resistance welding with the help of a neat sketch. Distinguish between Spot and Seam resistance welding.	**4**
3A.	Distinguish between Hot and Cold chamber Die casting process.	**2**
3B.	With neat sketches, explain the following sheet metal operations: a. Coining, b. Notching, c. Roll forming	**3**
3C.	Write a short note on the following bonding materials used in grinding wheels: Vitrified Bond, Shellac Bond and Resinoid Bond.	**3**
3D.	State four differences between Shaper and Planer.	**2**
4A.	What are the differences between conventional grinding and electrochemical grinding?	**3**
4B.	With a neat sketch explain the construction and working of indexing/dividing head of a milling machine.	**3**

4C.	What are the differences between Electrochemical and Electric Discharge machining (EDM)? State the advantages and limitations of EDM.	**4**
5A.	Explain the different parts of the twist drill body with the help of a neat sketch	**3**
5B.	Explain with sketches the taper turning methods for the following conditions: a. Steep taper angle for a small length, b. Small taper angle on longer jobs.	**3**
5C.	Estimate the actual machining time required for the component (C40 steel) shown in Fig Q5C. The available spindle speeds are 70, 110, 176, 280, 440, 700, 1100, 1760 and 2800. Use a roughing speed of 30 m/min and finish speed of 60 m/min. The feed for roughing is 0.24 mm/rev while that for finishing is 0.10 mm/rev. The maximum depth of cut for roughing is 2 mm. Finish allowance may be taken as 0.75 mm. Blank to be used for machining is 50 mm in diameter.	**4**

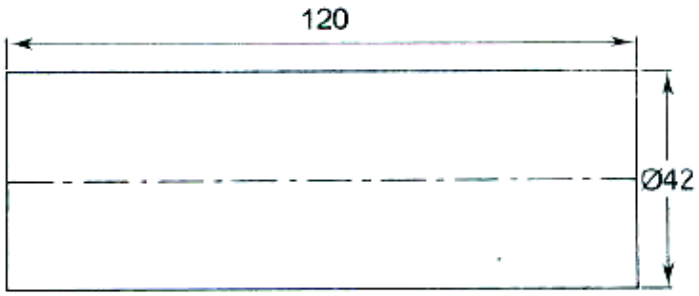

Fig. Q5C