Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VI SEMESTER B.TECH (MECHANICAL & IP ENGG.) END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: DESIGN FOR MANUFACTURE & ASSEMBLY [MME 4001]

PE-III

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Draw neat sketches wherever necessary.

1A.	List the steps involved in material selection process for an existing design.	**03**
1B.	Draw the block diagram showing different phases in morphology of design. Explain the sequential steps involved in phase-I of morphology of design.	**04**
1C.	Explain how the geometry of design, influences selection of manufacturing process.	**03**
2A.	Explain with proper justification any eight design recommendations for parts processed through sand casting.	**04**
2B.	Explain any eight design guidelines for parts to be produced by investment casting process. Give proper justification for each guideline.	**04**
2C.	What are the typical characteristics and applications of sand cast components?	**02**
3A.	Explain with necessary justification, the design guidelines to be followed for drilling a component.	**05**
3B.	Explain with suitable justification any six design guidelines for milling and any four design guidelines for surface grinding operation on a part.	**05**
4A.	Explain the effect of shrinkage in injection molding. Justify the design guidelines to be adopted for injection molding a component related to hole, gate location and rib features on it.	**05**

4B.	List the commonly observed defects in deep drawing? State the reasons for them. Explain with justification, any six design recommendations for a component to be produced by deep drawing.	**05**
5A.	Explain the design guidelines for part handling in manual assembly.	**03**
5B.	Explain how the part count and part types can be minimized in DFA of mechanical products.	**04**
5C.	List the importance of production drawings. Explain major components of a complete set of production drawings.	**03**

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