Printed Pages: 01 **Subject Code: EME-503**

PaperId: 140514 **Roll No.** | | | | | | | | | | |

B TECH

(SEM-V) THEORY EXAMINATION 2018-19

MANUFACTURING SCIENCE - II

Time: 3 Hours ***Total Marks: 100***

SECTION A

1. Attempt any four Questions in brief **5×4=20**

a. What are cutting fluids? Discuss some ofthe cutting fluids used during machining.
b. Draw the tool geometry of a single point cutting tool and show the different angles.
c. What are the causesof vibration and chatter during machining? How can vibration and chatter be avoidedwhile turningon acenter-lathe?
d. Write a note on types of chips with relevant sketches.
e. Explain Merchant's force circle diagram and derive the merchant's shear angle relationship.

SECTION B

2. Attempt any two of the following: **10×2=20**

a. What is machinability? Explain the factor that affectsthe machinabilityof a material. Explain the methods of representing it
b. Explain the tool layout forproducing ahexagonal bolt on a Capstan Lathe with various stages involved in producing the bolt.
c. Explain Crank Slotted link Quick return motion Mechanism with neat sketch for shaping machine.

3. Attempt any two of the following: **10×2=20**

a. Describe the mechanism of a dividing head and explain how it is used for indexing a work-piece e.g., a gear blank. Explain the difference between simple indexing and compound indexing.
b. Describe any four types of bonds for bonded abrasive on a grinding wheel. Explain grinding wheel wear in detail
c. What are the common abrasives used in a grinding wheel? Which abrasives are recommended for grinding (i) medium carbon steel and (ii) brass?
What ismeant byGritsizeand stateitseffecton groundsurface.

SECTION C

4. Attempt any two of the following: **10×2=20**

a. Define resistance welding and the various principle processes. What are themain factors to be considered in resistance welding ? Explain the process and equipment used inthis process.
b. Discuss the TIG & MIG welding in detail with the help of neat sketches?
c. Describe the oxy-acetylene welding equipment's. Discuss the appearance andproperties ofneutral flame, reducing flame and oxidizing flame. Why neutral flame is extensively used in oxy-acetylene welding ?

5. Attempt any two of the following: **10×2=20**

a. What is Ultrasonic machining? Explain its working principle and application in the field.
b. What is the principle of working of electro-chemical machining (ECM)? Compare ECM with EDM. What are the advantages, disadvantages and applications of ECM?
c. What is Electrical Discharge machining? Explain its working principle and application in the field.