

B.TECH
(SEM V) THEORY EXAMINATION 2017-18
MANUFACTURING SCIENCE AND TECHNOLOGY-II

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x10 = 20

- (a) What is Arc Blow?
- (b) What do you understand by boring reaming and broaching?
- (c) What do you understand by continuous chip with BUE.
- (d) What is the difference between end milling and face milling.
- (e) Name the types of grinding wheel wear.
- (f) What is the main point of difference between dressing and truing?
- (g) What is center less grinding?
- (h) What do you understand by HAZ in welding?
- (i) Write three main differences between TIG and MIG.
- (j) Enlist various defects during welding?(name only)

SECTION B

2. Attempt any three of the following: 10 x 3 = 30

- (a) Explain grinding wheel specification.
- (b) Discuss Soldering and Brazing process.
- (c) What is Arc welding? Discuss different types of arc in arc welding.
- (d) During an orthogonal cutting the following data is obtained:
 Rake angle=15°, chip thickness ratio= 0.39 , uncut chip thickness t=0.6mm , width of cut b= 3.3mm , yield shear stress of material in shear=280 N/mm² , average coefficient of friction on the tool face=0.7 , calculate normal and tangential forces on the tool face.
- (e) Explain the working mechanism of shaper machine. What are the main differences in shaper and planner?

SECTION C

3. Attempt any one part of the following: 10 x 1 = 10

- (a) Explain Merchant's force circle diagram and derive the merchant's shear angle relationship.
- (b) What are the uses of cutting fluids? Discuss some of the cutting fluids used during machining. Explain Crater wear and flank wear

4. Attempt any onepart of the following: 10 x 1 = 10

- (a) What are the methods of taper turning in a lathe? Explain their specific advantages and limitations.
- (b) Write the difference between turret lathe and capstan lathe. What are the uses of
 (i) Lead Screw (ii) feed rod (iii)Tail stock (iv)Half nut (v) Compound Slide in lathe machine.

- 5. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Explain the mechanics of metal removal process in ECM. Also discuss the electrochemistry behind ECM process and find the relation for volumetric removal rate.
 - (b) What does LASER stands for? Explain its working with neat sketch. How metal removal takes place by LBM.
- 6. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Discuss the TIG & MIG welding in detail with the help of neat sketches?
 - (b) Explain the principle & working of Atomic-hydrogen welding process? What is resistance welding write its advantages, limitation and applications.
- 7. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Describe any four types of bonds for bonded abrasive on a grinding wheel. Explain grinding wheel wear in detail
 - (b) Enlist the typical categories of grinding machines and briefly explain them. What are the cylindrical grinding and centerless grinding