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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/mm^2 , 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 *one*part 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