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Sub Code: NME055
Roll No.

B.TECH
(SEM VIII) THEORY EXAMINATION 2017-18
ADVANCED WELDING TECHNOLOGY

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 x 10 = 20**

a. Differentiate between gas welding and gas cutting.
b. State the use(s) of welding flux.
c. Name the types of resistance welding.
d. Which welding process requires creation of vacuum?
e. Define heat affected zone (HAZ).
f. Name any two non-destructive techniques for residual stress determination in welds.
g. What are the applications of cladding process?
h. What do you mean by hard facing?
i. State any two general source(s) of welding defects.
j. What are the causes for undercut in welding?

SECTION B

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

a. Explain in detail the advantages, limitations, applications of welding process.
b. State the principle of ARC welding and explain the working of MIG welding, with suitable diagrams.
c. Define residual stresses in welding. State and explain the major factors responsible for residual stress.
d. Explain in detail the advantages of hard facing with Oxy-acetylene torch?
e. Explain in detail – inspection before welding, inspection in between welding, inspection after welding.

SECTION C

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

(a) Using block diagram, classify the welding processes and explain the same.
(b) What are the similarities and differences between casting and welding process?

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

(a) Using neat sketch, explain TIG welding process. State its applications. What are the variants of TIG welding?
(b) Explain the procedure of electron beam welding process. What are the difficulties encountered during EBW? Support with neat sketch.

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

(a) Explain any two destructive techniques for residual stress determination.

(b) What are the main types of weld distortion? What are the causes for distortion?

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

(a) Briefly discuss the welding of cast iron. What kinds of defects are expected in such welding and what are their remedies?

(b) Explain in detail aluminium welding by double-operator method?

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

(a) Explain any five welding defects along with the causes and remedies.

(b) Using neat sketches, broadly categorize the welding joints. Also draw sketches for the different welding positions.