Printed Pages:02 **Sub Code:KME-055**

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B.TECH.
(SEM V) THEORY EXAMINATION 2022-23
ADVANCE WELDING

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

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

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

(a) Define welding.
(b) Describe the difference between DCEP and DCEN.
(c) Explain the function of flux in the welding.
(d) List any two solid state welding processes.
(e) Explain peak temperature.
(f) Describe HAZ.
(g) Describe surfacing in brief.
(h) Define weldability.
(i) Describe the meaning of NDT.
(j) Explain the use of welding symbols in brief.

SECTION B

2. Attempt any *three* of the following: 10x3 = 30

(a) Explain the classification of welding processes. Discuss the health and safety measures in welding.
(b) Describe plasma arc welding and gas metal arc welding with neat sketches.
(c) Illustrate:
  (i) Weld thermal cycle
  (ii) Residual stresses in welding
(d) Explain welding of cast iron in details. Also explain the effects of alloying elements on weldability
(e) Illustrate different types of weld defects with neat sketches. Also explain their causes and remedies.

SECTION C

3. Attempt any *one* part of the following: 10x1 = 10

(a) Describe:
  (i) Constant voltage power source characteristics
  (ii) Constant current power source characteristics
(b) The dc arc current has voltage – length characteristics as V = (10+30L) volts. The characteristics of power source is V = (60 – 0.07I) volts. Determine the optimum arc length and corresponding arc power.

4. Attempt any *one* part of the following: 10 x1 = 10

(a) Explain the following with neat sketches:
  (i) Electron beam welding
  (ii) Explosive welding

(b) Describe the following with neat sketches:
  (i) Manual metal arc welding
  (ii) Friction welding

5. Attempt any *one* part of the following: 10x1 = 10

(a) Illustrate:
  (i) Weld distortion
  (ii) Peak temperature

(b) Discuss the following in detail:
  (i) Cooling rate in welding
  (ii) solidification rate in welding.

6. Attempt any *one* part of the following: 10x1 = 10

(a) Explain with neat sketches:
  (i) Cladding
  (ii) Hardfacing

(b) Explain with neat sketches:
  (i) Reclamation welding
  (ii) Metallizing

7. Attempt any *one* part of the following: 10x1 = 10

(a) Illustrate different type of weld joints with neat sketches. Also explain different types of welds.

(b) Illustrate the difference between DT and NDT. Illustrate liquid penetrant test in detail with neat sketch.