Sub Code:KME-055

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Time:	3 H	Iours														Total Marks: 100						
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1.	Attempt all questions in brief.														$2\mathbf{x}10=20$							
	(a	l) ]	Defin	e w	eldiı	ng.																
	(b	) ]	Descr	ibe	the o	differe	ence b	etwee	en DO	CEP an	nd D	CE	N.									
	(c	;) ]	Expla	in tl	ne fi	inctio	n of fl	lux in	the v	veldin	g.											
	(d	<b>l</b> ) ]	List a	ny t	wo s	solid s	state w	veldin	ig pro	cesses	s.											
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	(2	g) ]	Descr	ibe	surf	acing	in brie	ef.														

- (h) Define weldability.
- Describe the meaning of NDT. (i)
- Explain the use of welding symbols in brief. (j)

# **SECTION B**

### 2. Attempt any three of the following:

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

### SECTION C

### 3. Attempt any one part of the following:

- (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.

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

Attempt any one part of the following:

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

### 5. Attempt any *one* part of the following:

(a) Illustrate:

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- (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:

- (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:

- (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.

10x1 = 10

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