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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech

SEM: II - THEORY EXAMINATION (2022-2023 .)

Subject: Advanced Welding Technology

Time: 3 Hours

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's)* & *Subjective type questions.*

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. *Preferably, write the answers in sequential order.*

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

1. Attempt all parts:-

1-a. In arc welding, once the arc is struck, the voltage required to maintain the arc 1 will be [CO1]

(a) 20-30 V

(b) 100-120 V

- (c) 200-220 V
- (d) 500-1000 V
- 1-b. Steel rails are welded by [CO2]
 - (a) Resistance welding
 - (b) Thermit Welding
 - (c) Argon arc welding
 - (d) Gas welding

1-c. Which of the following is an example of fusion welding? [CO3]

- (a) Arc welding
- (b) Forge welding

15

Max. Marks: 70

1



Subject Code:- AMTME0213

	(c) Resistance welding	
	(d) Thermit welding with pressure	
1-d.	Which of the following joint have high corrosion resistance? [CO4]	1
	(a) Welding joint	
	(b) Riveted joint	
	(c) Bolted joint	
	(d) None of the above	
1-e.	Sensors used to detect metallic parts only: [CO5]	1
	(a) Capacitive sensor	
	(b) Inductive sensors	
	(c) Thermocouple sensor	
	(d) Photoelectric sensor	
2. Attem	pt all parts:-	
2.a.	Define neutral flame and give its ratio? [CO1]	2
2.b.	What is the significance on which individual defect depend on? [CO2]	2
2.c.	What are the advantages and disadvantages of Non transferred plasma arc welding? [CO3]	2
2.d.	What is the strength of the single fillet weld? [CO4]	2
2.e.	Write short note on robot velocities. [CO5]	2
	SECTION B	20
3. Answe	er any <u>five</u> of the following:-	
3-a.	What is the effect of preheating in welding? [CO1]	4
3-b.	What are the similarities and differences between casting and welding process? [CO1]	4
3-c.	List any six optical aids that are being used in visual inspection. [CO2]	4
3-d.	What are the different methods of penetrant application? [CO2]	4
3.e.	Explain the effect of beam focussing on penetration in electron beam welding. [CO3]	4
3.f.	Why the cast iron is difficult to weld? [CO4]	4
3.g.	What is meant by through the arc sensing in robotic welding? [CO5]	4
	SECTION C	35
4. Answe	er any <u>one</u> of the following:-	

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4-a. With a neat sketch Explain Flux cored arc welding? [CO1]

7

4-b.	Why there are residual stresses in welds, why are they undesirable? Explain. [CO1]	7	
5. Answer any <u>one</u> of the following:-			
5-a.	Explain fusion penetration with neat sketch? [CO2]	7	
5-b.	With a neat sketch explain root cracking test? [CO2]	7	
6. Answ	ver any <u>one</u> of the following:-		
6-а.	Explain the mechanism of Diffusion bonding. [CO3]	7	
6-b.	Explain the key holing technique in Electron Beam Welding with a neat sketch. [CO3]	7	
7. Answer any <u>one</u> of the following:-			
7-a.	Write a short note on under water repair of ship [CO4]	7	
7-b.	Write about the safeties to be followed in welding processes. [CO4]	7	
8. Answer any <u>one</u> of the following:-			
8-a.	What is meant by controlling a welding robot. [CO5]	7	
8-b.	Write about the welding mechanisation. [CO5]	7	

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