



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Advanced Welding Processes (18ME0340)

Course & Branch: B.Tech - MECH

Regulation: R18

Year & Sem: IV-B.Tech & I-Sem

UNIT –I

INTRODUCTION TO GAS AND ARC WELDING PROCESS

1	a	Define the term Welding.	[L1]	[CO1]	[2M]
	b	What are the types of Welding?	[L1]	[CO1]	[2M]
	c	List out application of Shielded metal arc welding.	[L3]	[CO6]	[2M]
	d	Difference Between Solid State Welding and Fusion Welding.	[L1]	[CO1]	[2M]
	e	Explain Gas Welding process.	[L1]	[CO1]	[2M]
2	a	Write a short note on production of acetylene gas.	[L2]	[CO1]	[5M]
	b	Draw the Oxy-Acetylene welding setup and equipment. Discuss the importance of it.	[L2]	[CO1]	[5M]
3		Explain the types of flames produced in gas welding with a neat sketch.	[L2]	[CO1]	[10M]
4	a	What are the gas welding techniques?	[L1]	[CO1]	[6M]
	b	Give the applications of gas welding.	[L1]	[CO6]	[4M]
5		Explain oxy-fuel gas cutting with neat sketch of gas cutting torch and give the applications.	[L2]	[CO1]	[10M]
6		With neat sketch explain SMAW (Shielded metal arc welding) and operation.	[L2]	[CO1]	[10M]
7	a	What are the different types of electrode motions and positions in SMAW welding?	[L2]	[CO1]	[6M]
	b	Give the applications of SMAW	[L3]	[CO6]	[4M]
8	a	Classify the arc welding consumables.	[L1]	[CO1]	[6M]
	b	What are the main purposes of electrode coatings?	[L1]	[CO1]	[4M]
9		How can you classify heavily coated low carbon arc welding electrodes? Explain its importance.	[L2]	[CO1]	[10M]
10	a	Describe the procedure for coding the electrode for SMAW of low and medium alloy steel.	[L1]	[CO1]	[6M]
	b	Explain the meanings of E55RB2L23Fe as per BIS specification for SMAW.	[L3]	[CO1]	[4M]

UNIT –II**ARC WELDING AND PLASMA WELDING**

1	a	What is meant by Arc Welding Process	[L1]	[CO2]	[2M]
	b	Explain the TIG welding Process	[L1]	[CO2]	[2M]
	c	Describe the MIG/ CO ₂ Welding Process	[L1]	[CO2]	[2M]
	d	Draw a neat sketch of Plasma Welding	[L2]	[CO2]	[2M]
	e	Define Polarity in Welding	[L1]	[CO2]	[2M]
2		Discuss the process variables in Metal active Gas (MAG)	[L2]	[CO2]	[10M]
3	a	What are the advantages and disadvantages of Metal active Gas	[L1]	[CO2]	[5M]
	b	Give the applications of plasma arc welding (PAW) process and electrodes used in Metal active Gas	[L3]	[CO6]	[5M]
4	a	Name the types of weld backing methods for SAW and explain anyone.	[L1]	[CO2]	[5M]
	b	What are the types of fluxes and their compounding?	[L3]	[CO2]	[5M]
5		Draw the TIG welding setup and discuss the process.	[L2]	[CO2]	[10M]
6	a	Explain the addition of filler metal in TIG welding.	[L2]	[CO2]	[5M]
	b	What are the metals that can be welded by TIG and give the area of application?	[L2]	[CO2]	[5M]
7	a	Give the advantages and disadvantages of GTAW.	[L1]	[CO2]	[4M]
	b	What are the variants in GTAW and explain hot wire GTAW?	[L3]	[CO2]	[6M]
8	a	Discuss MIG welding setup and process with neat sketch.	[L2]	[CO2]	[5M]
	b	Give the area of application and advantages of MIG welding.	[L3]	[CO6]	[5M]
9		With neat sketch explain plasma arc welding process.	[L2]	[CO2]	[10M]
10	a	List the different forces that affect the mode of metal transfer in arc welding and describe their role in brief.	[L3]	[CO2]	[5M]
	b	Classify the modes of metal transfer in arc welding and describe their characteristics and use in position.	[L1]	[CO2]	[5M]

UNIT –III**ELECTRICAL POWER SOURCES FOR WELDING AND ADVANCED WELDING AND JOINING PROCESS**

1	a	What is mean by straight and reverse polarity	[L1]	[CO3]	[2M]
	b	Define the term Solid phase bonding	[L2]	[CO3]	[2M]
	c	What is the application of Ultrasonic welding	[L1]	[CO3]	[2M]
	d	Describe the Friction welding	[L1]	[CO3]	[2M]
	e	Explain the Pulsed current	[L1]	[CO3]	[2M]
2		Illustrate the role of static volt- ampere characteristics of a welding power source. Sketch and describe different types of static V-I characteristics and the need for them.	[L2]	[CO3]	[10M]
3		Write short notes on (i) Transformer-rectifier (ii) Motor generator set.	[L2]	[CO3]	[10M]
4	a	What are the different methods of controlling current in a welding transformer?	[L1]	[CO3]	[5M]
	b	Define duty cycle of a welding power source and explain its role in the selection of a power source.	[L2]	[CO3]	[5M]
5	a	Discuss the output V-I characteristics of welding generator and use of pulsed currents.	[L2]	[CO3]	[5M]
	b	If the maximum output current from a welding power source of 100% duty cycle is 350A, determine the rated current at 75% duty cycle.	[L4]	[CO3]	[5M]
6		Classify the sold state welding process and explain friction welding with neat sketch.	[L2]	[CO3]	[10M]
7		Discuss the friction welding process variables.	[L2]	[CO3]	[10M]
8	a	With neat sketch explain joint designs in friction welding.	[L2]	[CO3]	[5M]
	b	Explain the general characteristics of a transformer.	[L3]	[CO3]	[5M]
9		With suitable diagram explain the ultrasonic welding process.	[L2]	[CO3]	[10M]
10	a	Write short note on process variables of ultrasonic welding.	[L2]	[CO3]	[5M]
	b	Write advantages, disadvantages and applications of ultrasonic welding?	[L1]	[CO3 & CO6]	[5M]

UNIT –IV**EXPLOSIVE WELDING**

1	a	Define the Explosive Welding	[L2]	[CO4]	[2M]
	b	Draw a neat sketch of Explosive Welding	[L1]	[CO4]	[2M]
	c	Define the Seam welding	[L2]	[CO4]	[2M]
	d	Describe the Diffusion bonding	[L1]	[CO4]	[2M]
	e	Write the Advantage and disadvantage of Explosive Welding	[L1]	[CO4]	[2M]
2		Illustrate the process variables and its effects in explosive welding.	[L2]	[CO4]	[10M]
3	a	What is the application of explosive welding and area of application?	[L1]	[CO6]	[5M]
	b	Describe the process of explosion welding and explain its principle of operation.	[L2]	[CO4]	[5M]
4	a	Describe the diffusion welding process.	[L1]	[CO4]	[5M]
	b	What are the methods of diffusion welding and explain?	[L1]	[CO4]	[5M]
5	a	Discuss the various diffusion welding parameters.	[L2]	[CO4]	[6M]
	b	Give the advantages and disadvantages of diffusion welding.	[L2]	[CO4]	[4M]
6		Define adhesive bonding and explain the nature of adhesive joints with neat sketch.	[L1]	[CO4]	[10M]
7	a	Give the advantages and disadvantages of adhesive bonding.	[L2]	[CO4]	[5M]
	b	What are the applications of adhesive bonding?	[L1]	[CO4]	[5M]
8	a	Describe the basic principle of resistance welding.	[L3]	[CO4]	[5M]
	b	Explain the variants of spot-welding cycle process with a neat sketch.	[L3]	[CO4]	[5M]
9		Write short notes on seam welding and projection welding process with neat sketch.	[L2]	[CO4]	[10M]
10	a	With a neat sketch describe the flash butt welding process.	[L3]	[CO4]	[5M]
	b	What do you understand about Upset butt welding?	[L2]	[CO4]	[5M]

UNIT –V**BRAZING AND SOLDERING**

1	a	What is mean by Soldering	[L1]	[CO5]	[2M]
	b	Define the Brazing	[L2]	[CO5]	[2M]
	c	List out the application of Soldering	[L2]	[CO5]	[2M]
	d	Describe about Leaser Welding	[L1]	[CO5]	[2M]
	e	Explain the Electron Beam Welding	[L1]	[CO5]	[2M]
2		What are the different brazing processes used in industries? Explain any two of them.	[L3]	[CO5]	[10M]
3		Enumerate different soldering methods and describe in detail any two of them.	[L2]	[CO5]	[10M]
4		Describe the role of a flux in soldering. Name and describe in brief the important soldering fluxes.	[L1]	[CO5]	[10M]
5	a	Describe the brazing process and explain the steps used in brazed joint.	[L1]	[CO5]	[5M]
	b	Explain the use of brazing and disadvantages.	[L2]	[CO5]	[5M]
6		Describe with a neat sketch the constructional features of an electron beam gun.	[L2]	[CO5]	[10M]
7		What are the different types of vacuum systems for Electron beam electron welding process (EBW).	[L2]	[CO5]	[10M]
8		Discuss the process variables in Electron beam electron welding process.	[L2]	[CO5]	[10M]
9	a	What are the applications of Electron beam electron welding process?	[L3]	[CO6]	[5M]
	b	Give the advantages and disadvantages of EBW.	[L2]	[CO5]	[5M]
10	a	Describe the LASER beam welding process with neat sketch.	[L2]	[CO5]	[5M]
	b	Discuss the process variables in LASER beam welding.	[L2]	[CO5]	[5M]

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