



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

QUESTION BANK (DESCRIPTIVE)

Subject with Code: Advanced Welding Processes (19ME0340) Course & Branch: B. Tech – ME
Year/ Sem: IV-B. Tech & I-Sem Regulation: R19

UNIT I

1.	(a)	How do you classify welding process?	L2	CO1	6M
	(b)	What is the common fuel gases used in the gas welding process? Describe briefly.	L1	CO1	6M
2.	(a)	Explain the production of acetylene gas.	L2	CO1	6M
	(b)	Draw the Oxy-Acetylene welding setup and equipment. Discuss the importance of it.	L2	CO1	6M
3.		Explain the types of flames produced in gas welding with neat sketches.	L2	CO1	12M
4.	(a)	What are the gas welding techniques?	L1	CO1	6M
	(b)	Give the applications of gas welding.	L1	CO1	6M
5.		Explain oxy-fuel gas cutting with neat sketch of gas cutting torch and give the applications.	L2	CO1	12M
6.		With neat sketch explain SMAW (Shielded metal arc welding) and operation.	L2	CO1	12M
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	CO1	6M
8.	(a)	Classify the arc welding consumables.	L1	CO1	6M
	(b)	What are the main purposes of electrode coatings?	L1	CO1	6M
9.		How can you classify heavily coated low carbon arc welding electrodes? Explain its importance.	L2	CO1	12M
10.	(a)	Describe the procedure for coding the electrode for SMAW/MMAW of low and medium alloy steel.	L1	CO1	6M
	(b)	Explain the meanings of E55RB2L23Fe as per BIS specification for SMAW.	L3	CO1	6M

UNIT II

1.		Discuss the working principle of plasma arc welding and give the advantages, disadvantages of the process.	L2	CO2	12M
2.		Discuss the process variables in SAW	L2	CO2	12M
3.	(a)	What are the advantages of SAW?	L1	CO2	6M
	(b)	Give the disadvantages and applications of SAW.	L3	CO2	6M
4.	(a)	What are the applications of PAW.	L1	CO2	6M
	(b)	What are the types of fluxes and their compounding?	L3	CO2	6M
5.		Draw the TIG welding setup and discuss the process.	L2	CO2	6M

6.	(a)	Explain the addition of filler metal in TIG welding.	L2	CO2	6M
	(b)	What are the metals that can be welded by TIG and give the area of application?	L2	CO2	12M
7.	(a)	Give the advantages and disadvantages of GTAW.	L1	CO2	6M
	(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	6M
	(b)	Give the area of application and advantages of MIG welding.	L3	CO2	6M
9.	(a)	With neat sketch explain plasma arc welding process.	L2	CO2	6M
	(b)	Discuss about shielding gases used in GTAW and its effects on weld bead shape.	L2	CO2	6M
10.	(a)	List the different forces that affect the mode of metal transfer in arc welding and describe their role in brief.	L3	CO2	6M
	(b)	Classify the modes of metal transfer in arc welding and describe their characteristics and use in position.	L1	CO2	6M

UNIT III

1.	(a)	Give the desired characteristics of a welding power source.	L1	CO3	6M
	(b)	Explain the general characteristics of a transformer.	L2	CO3	6M
2.		Explain 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	12M
3.		Write short notes on (i) Transformer-rectifier (ii) Motor generator set.	L2	CO3	12M
4.	(a)	What are the different methods of controlling current in a welding transformer?	L1	CO3	6M
	(b)	Define duty cycle of a welding power source and explain its role in the selection of a power source.	L2	CO3	6M
5.	(a)	Discuss the output V-I characteristics of welding generator and use of pulsed currents.	L2	CO3	6M
	(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	6M
6.		Classify the solid state welding process and explain friction welding with neat sketch.	L2	CO3	12M
7.		Describe the LASER beam welding process with neat sketch.	L2	CO4	12M
8.		Illustrate the process variables in LASER beam welding.	L2	CO4	12M
9.		With neat sketch explain the weld joint design for laser welding of sheet metal.	L2	CO4	12M
10.	(a)	Give the advantages and disadvantages of LASER beam welding.	L2	CO4	6M
	(b)	What are the applications of LASER beam welding?	L1	CO4	6M

UNIT IV

1.		Classify the solid state welding process and explain friction welding with neat sketch.	L2	CO5	12M
2.		Discuss the friction welding process variables.	L2	CO5	12M

3.	(a)	With neat sketch explain joint designs in friction welding.	L2	CO5	6M
	(b)	Give the applications of friction welding process.	L3	CO5	6M
4.		List the variants of friction welding. Explain with neat sketch inertia welding process.	L2	CO5	12M
5.	(a)	Discuss the working principle of friction stir welding.	L2	CO5	6M
	(b)	What are the advantages and limitations of friction stir welding?	L1	CO5	6M
6.	(a)	Describe the process of explosion welding and explain its principle of operation.	L2	CO5	6M
	(b)	What are the elements used in explosive welding? Write short note of it.	L1	CO5	6M
7.		Explain the process variables and its effects in explosive welding.	L2	CO5	12M
8.	(a)	What are the application of explosive welding and area of application?	L1	CO5	6M
	(b)	Give the advantages and disadvantages of explosive welding.	L2	CO5	6M
9.	(a)	Describe the diffusion welding process.	L1	CO5	6M
	(b)	What are the methods of diffusion welding and explain?	L1	CO5	6M
10		Define adhesive bonding and nature of adhesive joints. With neat sketch write short notes of joint designs in adhesive bonding.	L1	CO5	12M

UNIT V

1.		Describe the brazing process and explain the steps used in brazed joint.	L1	CO6	12M
2.		What are the different brazing processes used in industries? Explain any two of them.	L3	CO6	12M
3.		Enumerate different soldering methods and describe in detail any two of them.	L2	CO6	12M
4.	(a)	Give the advantages and disadvantages of adhesive bonding.	L2	CO6	6M
	(b)	What are the applications of adhesive bonding?	L1	CO6	6M
5.	(a)	Write short notes on seam welding and projection welding process with neat sketch.	L2	CO6	6M
	(b)	With neat sketch describe the flash butt welding process.	L3	CO6	6M
6.		With suitable diagram explain the ultrasonic welding process.	L2	CO6	12M
7.	(a)	Write short note on process variables of ultrasonic welding.	L2	CO6	6M
	(b)	What are the advantages, disadvantages and applications of ultrasonic welding?	L1	CO6	6M
8.	(a)	How you classify thermal cutting process?	L2	CO6	6M
	(b)	Explain oxy fuel gas cutting.	L2	CO6	6M
9.		Enumerate the effect of flame cutting speed and gas pressure on kerf and drag.	L3	CO6	12M
10.	(a)	Give the applications of thermal cutting process.	L2	CO6	6M
	(b)	What are the safety precautions used in plasma arc cutting process?	L1	CO6	6M