

Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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Fourth Semester B.E. Degree Examination Metal Casting and Welding

TIME: 03 Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module -1			*Bloom's Taxonomy Level	Marks
Q.01	a	How are metal casting units classified? Explain with example	L1	4
	b	Name the ingredients commonly mixed in the molding sands and illustrate properties contribution by each of them?	L2	10
	c	Identify and explain the different factors which affect the properties of CO ₂ sand.	L3	6
OR				
Q.02	a	Compare the process ,applications of shell molding and Investment casting	L1	9
	b	Illustrate the requirements of base sand in preparation of sand mold?	L2	5
	c	Identify the different manufacturing process and write about any one process with advantages?	L3	6
Module-2				
Q. 03	a	Organize and explain the influence of the following terms in Cupola furnace working: (i) Coke bed height (ii) Iron coke ratio (iii) Air flow rate	L3	8
	b	What are the unique advantages of making castings in permanent molds? Explain the cycle of Pressure die casting process?	L1	5
	c	With neat sketch explain the principle of Electric arc furnace?	L2	7
OR				
Q.04	a	How melting furnaces are are classified? Explain with example	L1	6
	b	With neat sketch explain the parts, principle and operation of High frequency Induction Furnace?	L2	8
	c	Explain the working principle of squeeze casting process? And outline its advantages and application.	L2	6
Module-3				
Q. 05	a	Discuss the casting defects which may be directly attributed to the molding sand used for steel casting. Discover the remedial measures you would like to adopt to overcome these defects.	L4	10
	b	Critically examine the solidification of metal and alloys?	L3	6
	c	Explain the solidification of phenomena that affect the casting soundness.	L2	4
OR				
Q. 06	a	Explain the formation of casting from liquid metal poured in to the mold. What are the conditions that favour the formation of equiaxed grains?	L2	8
	b	Identify the basic steps involved in Fettling and cleaning of castings?	L3	6
	c	What do you mean by Grain refining explain its importance in casting process with an example?	L1	6
Module-4				
Q. 07	a	Explain the classification of welding process?	L1	6
	b	Illustrate the working principle of Metal arc welding (MAW) with an advantages, disadvantages and application?	L3	9
	c	Identify the widely using welding process to repair railway track and explain its working principle?	L2	5

OR				
Q. 08	a	Identify the process parameters in Shielded Metal arc welding (SMAW) and explain its effect on welding.	L3	7
	b	Select any one of the application of Resistance welding process and justify how this process suitable for selected application?	L 2	8
	c	Choose the arc welding process for aluminium alloy with justification	L 1	5
Module-5				
Q. 09	a	With neat sketch illustrate different structure of welds?	L 1	5
	b	Distinguish between Soldering and Brazing with respect to joint strength and give its applications?	L 3	6
	c	Explain the different testing methods in casting and welding process?	L 2	9
OR				
Q. 10	a	Illustrate formation of grain in weld zone (WZ) and heat affected zone (HAZ) of fusion welding process?	L 2	6
	b	Explain the working principle of Oxy Acetylene gas welding process with advantages, and applications?	L 2	4
	c	A mild steel metal of 6 mm thickness want to join as a butt joint, Illustrate about; (i) Selection of welding process, its parameters and approximate values, (ii) type of filler wire and welding preparations. (iv) precautions for weld defects and residual stresses (v) Inspection of weld joints	L 4	10

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.