BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID-SEMESTER EXAMINATION SP2025)

CLASS: BTECH **SEMESTER: IV**
BRANCH: PIE **SESSION: SP2025**

SUBJECT: PE216 FOUNDRY, FORMING & WELDING TECHNOLOGIES

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Enlist some advantages of sand-casting processes compared to other manufacturing processes.	[2]	CO1	BL2
Q.1(b)	Critically analyse the effect of the following on the sand-casting moulding sand: (i) sand size, (ii) moisture content, and (iii) clay type	[3]	CO1	BL4
Q.2(a)	A grey cast iron casting is to be produced of size: 200×100×46 mm with machining allowance of 2 mm/side and shrinkage allowance of 2%. Design the pattern.	[3]	CO1	BL6
Q.2(b)	What are cores in sand casting? What are core prints?	[2]	CO1	BL2
Q.3(a)	Differentiate between the casting defects misrun and coldshuts.	[2]	CO1	BL4
Q.3(b)	A riser in the shape of a sphere is to be designed for a sand-casting mould. The casting is a rectangular plate, with length = 200 mm, width = 100 mm, and thickness = 18 mm. If the total solidification time of the casting itself is known to be 3.5 min, Design the riser so that it will take 25% longer for the riser to solidify. Assume H/D of riser = 1.	[3]	CO1	BL6
Q.4(a)	With neat diagrams explain *lost wax casting (investment casting)* process.	[3]	CO2	BL2
Q.4(b)	Compare and contrast *hot chamber* and *cold chamber die casting process*.	[2]	CO2	BL4
Q.5(a)	Classify different types of welding processes.	[3]	CO3	BL2
Q.5(b)	What are the different types of welded joints?	[2]	CO3	BL1

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