

B.E/B.Tech DEGREE EXAMINATIONS, APRIL/MAY2014

Manufacturing Engineering(R-2004/2008)

Fifth Semester

MN504/MF9301 ADVANCED WELDING AND CASTING PROCESSES

/CASTING AND WELDING TECHNOLOGY

Time:3 Hours

Max.:100 Marks

Answer ALL Questions

PART -A(10x2=20 Marks)

- 1 How does hydrogen dissolve in molten Aluminium?
- 2 Write short note on inoculation.
- 3 What do you meant by 'arrest points' in solidification?
- 4 What do you meant by 'free height 'in gating system design?
- 5 Write short note on ISO welding classes.
- 6 Draw weld symbol for the following :Field weld, All round weld
- 7 What do you understand by friction welding? Where is it suitable?
- 8 What are the two types of squeeze casting?
- 9 Write short note on weld seam tracking.
- 10 Differentiate shrinkage and porosity.

PART -B(5 x 16=80 Marks)

- 11 i) Explain about residual stresses in weld. (8)
ii) Enumerate the factors to be considered while designing welds subjected to fatigue load. (8)
- 12 a.i) Enumerate with neat sketch production of cementation steel. (8)
ii) Draw neat sketch of cupola furnace and indicate various zones and temperatures. (8)

Or

- b.i) With a neat sketch, explain the principle of indirect electric arc furnace. (8)

- ii) Explain the casting characteristics and properties of grey cast iron. (8)
- 13 a.i) Briefly discuss about pressurised and non pressurised gating system with their merits and demerits. (8)
- ii) With simple sketches, describe the methods used to eliminate hot spots in 'T' sections. (8)

Or

- b.i) Explain about three distinct stages of shrinkage during molten alloys solidification. (8)
- ii) What are the three design requirements of riser? Explain them with examples. (8)
- 14 a.i) Explain lost wax process with neat sketch. (8)
- ii) Describe with neat sketch Plasma Arc welding. (8)

Or

- b.i) Enumerate shell moulding with neat sketches and mention its advantages over other moulding methods. (8)
- ii) Explain the high velocity oxy fuel process with neat sketch. (8)
- 15 a.i) Explain in brief the various defects and distortions in welding. (8)
- ii) Explain with neat sketch the principle of jolt-squeeze moulding machine. (8)

Or

- b.i) Explain magnetic particle inspection method to test welded components with advantages and limitations. (8)
- ii) With neat sketch, Explain briefly two methods of dust collecting equipments used in foundry. (8)
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