

[Total No. of Questions - 8]
(2123)

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1585

M. Tech 1st Semester Examination

Metal Casting

PE-101

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt any five questions.

1. (a) Define the term AFS clay content and explain the procedure to determine the same. (10)
- (b) Explain the various types of core binders used in core making. (10)
2. (a) List the various desirable properties of molding sand and explain the procedure to determine green compression strength, hot strength and green shear strength. (10)
- (b) Describe the terms mold hardness and permeability in relation to molding process. (10)
- (a) Describe the process of solidification of a casting in a mold cavity and skin effect in relation to it. (10)
- (b) Explain the term shrinkage and its importance in solidification of a casting. (10)
4. (a) Describe the term fluidity of molten metal. Explain the effect of composition of metal and pouring temperature on the same. (10)
- (b) Explain the various factors influencing the dendrite formation in a casting. (10)

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5. (a) Describe the use of insulating sleeves/pads and antipiping compounds in a riser system. (10)
- (b) What is a blind riser? Explain its advantages over other types of risers. (10)
6. (a) Explain the need and working of a gating system with a neat sketch. (10)
- (b) Explain the application of Bernoulli's theorem in a gating system. (10)
7. (a) Describe the various factors in deciding the location of risers in a casting. (10)
- (b) Describe the following terms in reference to a gating/riser system:
- (a) Chill
- (b) Internal riser
- (c) Bottom gate (10)
8. Write notes on:
- (a) Lost wax process:
- (b) Hot chamber dies casting
- (c) Core baking (20)
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