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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)**

3. (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)**

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)**