



**POSTAL
BOOK PACKAGE**

2025

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**MECHANICAL
ENGINEERING**

Objective Practice Sets

Production and Maintenance Engineering

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Metal Casting

MCQ and NAT Questions

- Q.1** Pattern for very large casting would require a tremendous amount of timber for full pattern. In such case which one of the following pattern can be used?
- Sweep pattern
 - Skeleton pattern
 - Segmental pattern
 - Shell pattern
- Q.2** In solidification of metal during casting, compensation for solid contraction is
- Provided by the oversize pattern
 - Achieved by properly placed riser
 - Obtained by promoting direction solidification
 - Made by providing chills
- Q.3** The allowances which are provided for by making a pattern slightly smaller than actual size is known as
- Shrinkage allowance
 - Draft allowance
 - Camber allowance
 - Rapping allowance
- Q.4** Which of the following material will require the largest size of riser for the same size of casting?
- aluminium
 - cast iron
 - steel
 - copper
- Q.5** Which one of the following is not a sand conditioning advantage?
- Binder is uniformly distributed around the sand grains
 - Properly controlled moisture content
 - decrease flowability of sand
 - foreign particles are separated and removed
- Q.6** Which one of the following is not an advantage of green sand mould?
- Good dimensional accuracy across the parting line
 - Less danger of hot tearing
 - Erosion does not occur in large casting
 - least expensive method of producing castings
- Q.7** Heated metal pattern in shell moulding is made of
- Aluminium
 - Medium carbon steel
 - Grey cast Iron
 - Bronze
- Q.8** Hot box moulding process is used to produce
- small casting in large quantities
 - small casting in small quantities
 - large casting in small quantities
 - large casting in large quantities
- Q.9** Which of the following are the requirements of an ideal gating system?
- The molten metal should enter the mould cavity with as high a velocity as possible.
 - It should facilitate complete filling of the mould cavity.
 - It should be able to prevent the absorption of air or gases from the surroundings on the molten metal while flowing through it.
- Select the correct answer using the codes given below:
- 1, 2 and 3
 - 1 and 2
 - 2 and 3
 - 1 and 3
- Q.10** A pattern material should be
- Less in weight
 - Dimensionally stable
 - Strong, hard & durable
 - Repairable
- Which of the above properties are correct for a pattern material?
- 1, 2 and 4
 - 2, 3 and 4
 - 1, 3 and 4
 - 1, 2, 3 and 4
- Q.11** Consider the following advantage of dry sand mould over green sand moulds

Which of the following is(are) correct?

- (a) The value of shape factor is 2.4.
- (b) The volume of the riser is 781.25 cm³.
- (c) Height of the riser is 10 cm.
- (d) Diameter of the riser is 10 cm.

Q.70 In a gating design, gating ratio is 3 : 2 : 1. It is used for producing a casting of mass 10 kg. Density of material is 2700 kg/m³. Filling time required is 9 second. Height of the liquid metal above the gate is 150 mm, coefficient of discharge is 0.97.

Which of the following is(are) correct?

- (a) Choke area for the given casting is 2.47 cm²
- (b) Diameter of sprue is 2.51 cm.
- (c) Diameter of runner is 3.07 cm.
- (d) Given gating system is pressurized gating system.

Q.71 Which of the following statements is(are) correct about un-pressurized gating system?

- (a) There is no problem of turbulence and splashing.
- (b) It is preferred for the casting of ferrous materials.
- (c) There is no possibility of air aspiration.
- (d) Casting yield is less.

Q.72 Which of the following statements is(are) correct for shrinkage allowance?

- (a) Liquid and solidification shrinkages are compensated by providing riser.

- (b) Liquid and solidification shrinkage are given as % of shrinkage volume of the material.
- (c) Solid shrinkage is provided on pattern.
- (d) Solid shrinkage is expressed in terms of linear dimension.

Q.73 A slab casting of dimensions 40 × 20 × 10 cm³ has to be produced by using a cylindrical side riser with ($h = d$) using modulus method. Which of the following is(are) correct?

- (a) The modulus of casting is 2.857.
- (b) The modulus of riser is 3.43.
- (c) Height of the cylindrical side riser is 20.6 cm.
- (d) Volume of the cylindrical side riser is 3418 cm³.

Q.74 Which of the following statements is(are) correct?

- (a) True centrifugal casting is used for producing hollow cylindrical objects without using the core in mass production.
- (b) Semi centrifugal casting can be used for the production of pulleys, wheels and spoked wheels.
- (c) Cold chamber die casting is used for producing complex shape of the objects which are made up of Al, Cu and Brass.
- (d) Hot chamber die casting is used for producing complex shape of the objects which are made up of lead, tin and zinc.



Answers	Metal Casting					
1. (b)	2. (a)	3. (d)	4. (a)	5. (c)	6. (c)	7. (c)
8. (a)	9. (c)	10. (d)	11. (a)	12. (c)	13. (b)	14. (c)
15. (a)	16. (a)	17. (b)	18. (d)	19. (a)	20. (a)	21. (d)
22. (a)	23. (c)	24. (b)	25. (a)	26. (a)	27. (d)	28. (a)
29. (b)	30. (d)	31. (b)	32. (b)	33. (b)	34. (a)	35. (c)
36. (b)	37. (d)	38. (d)	39. (d)	40. (b)	41. (d)	42. (b)
43. (a)	44. (b)	45. (d)	46. (c)	47. (b)	48. (c)	49. (a)
50. (c)	51. (c)	52. (b)	53. (b)	54. (d)	55. (a)	56. (a)
57. (a)	58. (a)	59. (80.21)	60. (66.81)	61. (5.05)	62. (203.8)	63. (33.85)
64. (144.952)	65. (112.5)	66. (96.415)	67. (18)	68. (8.18)	69. (b, c, d)	
70. (a, d)	71. (a, d)	72. (a, b, c, d)	73. (a, b, c)	74. (a, b, c, d)		