

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech (ME-OLD)/SEM-4/ME-406/2013

2013

MANUFACTURING TECHNOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$
 - i) In sand mould casting, the sprue is made taper for maintaining constant
 - a) Pressure of the liquid
 - b) Temperature of the liquid
 - c) Laminar flow of the liquid
 - d) Turbulent flow of the liquid
 - e) None of these.
 - ii) A specially designed shape of the refractory to take the shape of the metal in a mould is called
 - a) Chaplet
 - b) Chill
 - c) Riser
 - d) Core
 - e) None of these.

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- iii) Shrinkage allowance given to a core in casting is
 - a) Positive
 - b) Negative
 - c) Nil
 - d) None of these.
- iv) In metal arc welding, the flow of arc is caused due to
 - a) flow of electrons
 - b) high potential voltage
 - c) high current
 - d) ionization of the gas
 - e) melting of the electrode.
- v) Which of the following inert gases is basically used for welding of alloy steel in MIG welding ?
 - a) CO_2 + Argon
 - b) Helium + Argon
 - c) CO_2 + Helium
 - d) CO_2
 - e) None of these
- vi) For best soldering, the gap between the base metal is
 - a) 1 mm to 5 mm
 - b) 0.1 mm to 0.5 mm
 - c) 0.01 mm to 0.05 mm
 - d) 0.001 mm to 0.005 mm
 - e) None of these.
- vii) A composite material in plastic matrix can be produced by
 - a) Cold die casting
 - b) Investment casting
 - c) Transfer moulding
 - d) Pressure casting
 - e) None of these.

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- viii) Cold rolling of metals causes
 - a) Embitterment
 - b) Oxidation
 - c) Decarburization
 - d) Hardening
 - e) None of these.
- ix) Centrifugal casting having core is called
 - a) core centrifugal casting
 - b) true centrifugal casting
 - c) semi-centrifugal casting
 - d) centrifuging
 - e) none of these.
- x) Cracks in a welding is caused due to
 - a) high current
 - b) low current
 - c) presence of hydrogen
 - d) presence of sulphur
 - d) presence of sili on.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- 2. State various allowances in a pattern and the reason for providing it.
- 3. What is Master pattern & its allowance ?
- 4. What is directional solidification and how is it achieved in a casting ?
- 5. How taper angle of a sprue is calculated ?
- 6. State Chvorinov rule and its application.

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7. What is Caines formula and for what purpose is it used ?
8. State various steps of sand casting.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

9. a) Explain the most economical process of manufacturing grey cast iron. Municipal pipes are of large diameter and 3 m to 5 m length on a muss scale. Give sketch. 10
b) State advantage & disadvantage of his rocess. 5
10. a) State difference between drawing & extrusion. 7
b) With a neat sketch explain transfer moulding, its application and limitations. 8
11. With a neat sketch explain various types of rolling mill arrangements and ts application.
12. a) With a neat sketch, show full arrangement of MIG w lding, the type of inert gas used, the process and the application. 10
b) Give the application of friction welding and TIG welding.
 $2\frac{1}{2} + 2\frac{1}{2}$
13. Explain investment casting, the process, its advantages & disadvantages.
