

Skill Development and Entrepreneurship Department
Directorate of Vocational Education and Training
Directorate of Skill Development, Employment and Entrepreneurship
Question Paper Group Name: Mechanical-8
Question Paper Post Names: Craft Instructor-Moulder

Duration: 60 Minutes

Total Questions: 40

INSTRUCTIONS

1. This Question Paper Booklet contents 40 mandatory questions. Candidate should check the Question Paper Booklet and ensure that it contains all pages and questions before starting to answer. If candidate finds any problem pertaining to printing/ binding/ incomplete pages etc, candidate should immediately get the Question Paper replaced from the Invigilator.
2. Candidate has to write his/ her seat number in this block.

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3. The Question Booklet Number as printed above should be mentioned at the appropriate place on the OMR Answer Sheet.
4. All the Questions are provided with 4 options as 1, 2, 3 and 4. Candidate should select the most correct Option and mention the Option Number on the OMR Answer Sheet in front of the respective Question Number by **fully shading the Option Number with BLACK INK BALL POINT PEN Only.**
5. All Questions carry equal marks i.e. 1 Question has a weightage of 1 marks. Candidate should mind the available time for the examination and solve the questions accordingly.
6. The option shaded once on the OMR Answer Sheet should not be roughed or in any other way changed. Thus candidate should take utmost care while marking their options on OMR Answer Sheet. Such changes if any or any attempt to rough/ change options shall not be checked by the authorities.
7. Marks shall be awarded to the correct answers only during the evaluation of the OMR Answer Sheet. No marks shall be deducted for registering wrong answers (shading wrong option) or not attempting questions. Thus there is **NO NEGATIVE MARKING SYSTEM.**
8. All the rough work has to be done on the sheet provided for Rough Work in the Question Booklet only. Writing anything on the Question Paper Booklet, OMR Answer Sheet or any other Paper Sheet shall be treated as an unfair means and entitle for action under "Prohibition of Unfair Practices during examination Ordinance – 1982".
9. Method of Shading the Correct Option on the OMR Answer Sheet:

Q.No. 25. How many Centimeters make 1 Meter?

- | | |
|----------|-----------|
| (1) 10 | (2) 100 |
| (3) 1000 | (4) 10000 |

The Correct Option for this Question is (1) and hence the (2) option on the OMR Answer Sheet in front of Question Number 25 has to be shaded as following

**USE ONLY BLACK INK BALL POINT PEN FOR SHADING****IMPORTANT**

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THIS QUESTION PAPER BOOKLET AND PART – 1 OF OMR ANSWER SHEET HAVE TO BE SUBMITTED TO THE INVIGILATOR AFTER THE EXAMINATION.

1. There are certain metals and alloys which can be processed by only casting is due to

- | | |
|--------------------------------|-----------------------------|
| 1. Metallurgical consideration | 2. Working consideration |
| 3. Physical consideration | 4. Mechanical consideration |

2. Which of the following is not a stage in contraction allowance of pattern making?

- | | |
|---------------------|------------------------------|
| 1. Solid shrinkage | 2. Solidification shrinkage |
| 3. Liquid shrinkage | 4. Liquidification shrinkage |

3. Combustion zone of cupola has temperature range of

- | | |
|-----------------------|-----------------------|
| 1. 1750 °C to 1890 °C | 2. 1600 °C to 1900 °C |
| 3. 1550 °C to 1850 °C | 4. 1850 °C to 2100 °C |

4. Smaller size foundary plant will prefer _____ furnace for an average of 30 to 150 kg of capacity.

- | | |
|---------------------|-------------------|
| 1. Pit type furnace | 2. Cupola furnace |
| 3. Shank ladle | 4. None |

5. To improve the moulding properties which material is used as additives?

- | | |
|-----------------|----------|
| 1. Coal dust | 2. Chalk |
| 3. Metal powder | 3. Sand |

6. Green sand mould are prepared by _____.

- | | |
|---------------------------------|------------------------------------|
| 1. Silica grain, clay, moisture | 2. Silicon carbide, clay, moisture |
| 3. Silica grain, sand, moisture | 4. Silicon carbide, sand, moisture |

7. Which of the following does not affect the strength of the moulding sand?

- | | |
|------------------------------|-------------------------|
| 1. Sand grain size & shape | 2. Clay type and amount |
| 3. Method adopted to prepare | 4. Allowance |

8. Large and heavy casting requires _____ type of gating system.

- 1. Bottom gate
- 2. Step gate
- 3. Top gate
- 4. Parting gate

9. Which material is used to prepare pattern?

- 1. Wax
- 2. Rubber
- 3. Metal
- 4. Cement

10. Pouring basin is connected to runner by _____ element in gating system.

- 1. Sprue
- 2. Riser
- 3. In gate
- 4. Cavity

11. The effective sprue height 'H' of mould in case of bottom gate is given by _____ h- height of spruce, P height of mould cavity, c total height of mould cavity.

- 1. $H = h$
- 2. $H = h - P/2$
- 3. $H = h - \frac{P^2}{2C}$
- 4. $H = h - C/2$

12. Fettling is the process used to

- 1. Create the cavity is mould
- 2. Remove the defects present in the casting.
- 3. Remove the unwanted projection of the casting
- 4. Create the pattern for casting.

13. Mostly shrinkage cavity defects occur in casted part due to

- 1. Improper material selection
- 2. Improper casting design
- 3. Improper setting time
- 4. None

14. _____ is used to loose the pattern from the cavity.

- 1. Hammer
- 2. Rammer
- 3. Mallet
- 4. Vent Rod

15. _____ is used to remove excess sand from mould to have level surface after ramming.

- | | |
|-----------|-------------------|
| 1. Rammer | 2. Rapping plate |
| 3. Travel | 4. Strike off bar |

16. _____ is used by the moulder to ensure the sand moulding box is horizontal.

- | | |
|-----------------|-----------|
| 1. Sine bar | 2. Gauges |
| 3. Spirit level | 4. Clamps |

17. _____ is used to mark 90° angles in pattern making.

- | | |
|-----------------|---------------|
| 1. Making knife | 2. Try square |
| 3. Divider | 4. Gauges |

18. _____ saw is used to create keyhole.

- | | |
|----------------|----------------|
| 1. Back saw | 2. Compass saw |
| 3. Copping saw | 4. Pad saw |

19. _____ is the strongest corner wooden joint.

- | | |
|------------------------|------------------------|
| 1. Dovetail joint | 2. Bridle joint |
| 3. Halving Bevel joint | 4. Cross tongued joint |

20. The planning of wood material is checked by _____.

- | | |
|---------------|------------------|
| 1. Gauges | 2. Scrapers |
| 3. Try square | 4. Marking knife |

21. _____ is the drawback of top gating system.

- | | |
|---------------|--------------|
| 1. erosion | 2. Checking |
| 3. Blow holes | 4. Stinkages |

22. _____ is used as oxidizer during charging of cupola.

- | | |
|----------------------|-----------------|
| 1. Ferro – silicate | 2. Manganese |
| 3. Ferro – Manganese | 4. Silica oxide |

23. The ratio between the metal melted and coke charged most commonly is

- | | |
|---------|---------|
| 1. 6:2 | 2. 2:6 |
| 3. 10:1 | 4. 1:10 |

24. _____ is used to drain the melted molten metal in cupola.

- | | |
|--------------|----------------|
| 1. Tuyeres | 2. Tap hole |
| 3. Slag hole | 4. Drop bottom |

25. _____ is used to circulate air in furnace of cupola.

- | | |
|--------------|----------------|
| 1. Tuyeres | 2. Tap hole |
| 3. Slag hole | 4. Drop bottom |

26. A fan supplies 100 cu m of air per minute to a cupola. If the air required to melt one tonne of metal is 1000 cu m hour. Calculate the capacity of the cupola. Assume 10% leakage in pipeline.

- | | |
|------------------|------------------|
| 1. 4.5 Tonnes/hr | 2. 3.5 Tonnes/hr |
| 3. 5.4 Tonnes/hr | 4. 5.3 Tonnes/hr |

27. At the top of the furnace cupola is _____.

- | | |
|------------------|-------------------|
| 1. Charging door | 2. Spark arrester |
| 3. Fettle hole | 4. Wind box |

28. _____ pattern defect can be avoided by proper fluxing and using traps.

- | | |
|----------|--------------|
| 1. Fin | 2. Pin holes |
| 3. Swell | 4. Dirt |

29. _____ is used to support cylindrical block for marking in metal working.

- | | |
|---------------|------------------|
| 1. Try square | 2. Angle plate |
| 3. V-Block | 4. Surface plate |

30. The internal stop diameter can be easily measured using _____

- | | |
|---------------------|--------------------|
| 1. Divider | 2. Micrometer |
| 3. Transfer caliper | 4. Vernier caliper |

31. _____ is not a type of drill bit.

- | | |
|--------------------------|------------------|
| 1. Flat drill | 2. Twisted drill |
| 3. Straight fluted drill | 4. Angular drill |

32. _____ operation is used to show high surface quality.

- | | |
|-------------|-------------|
| 1. Milling | 2. Shaping |
| 3. Grinding | 4. Drilling |

33. _____ type of chisel is used to cut key ways in wheels and shaft.

- | | |
|------------------|--------------|
| 1. Diamond point | 2. Cross cut |
| 3. Half round | 4. Side |

34. The buoyant force on core in sand mould casting is given by P - buoyant force, V - volume of core,

ρ = wt density of liquid metal, d - wt density of core material.

- | | |
|----------------------|----------------------|
| 1. $P = V(\rho - d)$ | 2. $P = V(\rho + d)$ |
| 3. $P = \rho V - d$ | 4. $P = \rho - dv$ |

35. _____ is the main constituent of ferrous material.

- | | |
|-------------|-----------|
| 1. Brass | 2. Copper |
| 3. Aluminum | 4. Iron |

36. Which of the following is non-ferrous material?

- | | |
|-----------------|--------------------|
| 1. Pig iron | 2. Stainless steel |
| 3. Wrought iron | 4. Copper |

37. To remove internal stresses from molten iron _____ heat treatment is followed in natural conditioning of furnace itself.

- | | |
|----------------|-----------------|
| 1. Normalising | 2. Hardening |
| 3. Tempering | 4. Austempering |

38. _____ is performed for rapid cooling of molten metal.

- | | |
|----------------|--------------|
| 1. Normalising | 2. Tempering |
| 3. Quenching | 4. Nitriding |

39. For indication of 600°C following colour code is used in heat treatment.

- | | |
|-----------|-----------|
| 1. Red | 2. Yellow |
| 3. Orange | 4. Brown |

40. _____ gives less amount of slag.

- | | |
|---------------|------------------|
| 1. Mild steel | 2. Wrought iron |
| 3. Pig iron | 4. Carbide steel |

SPACE FOR ROUGH WORK

EAL

EAL