

**Skill Development and Entrepreneurship Department**  
**Directorate of Vocational Education and Training**  
**Directorate of Skill Development, Employment and Entrepreneurship**  
**Question Paper Group Name: Mechanical-14**  
**Question Paper Post Names: Mathematic Instructor**

Duration: 60 Minutes

Total Question: 40

**INSTRUCTIONS**

1. This Question Paper Booklet contents 40 mandatory questions. Candidate should check the Question Paper Booklet and ensure that it contents 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. 1 mm is equal to

- |                |                     |
|----------------|---------------------|
| 1. 0.001 m     | 2. 0.03937 inch     |
| 3. 1000 micron | 4. All of the above |

2. 5 Ton Mass is equal to

- |              |                      |
|--------------|----------------------|
| 1. 2.205 lbs | 2. 2240 lbs          |
| 3. 11200 lbs | 4. None of the above |

3. The force which imparts an acceleration of  $1 \text{ m/sec}^2$  to a body of mass 1 kg is

- |         |          |
|---------|----------|
| 1. 1 N  | 2. 9.8 N |
| 3. 1 Kg | 4. 1 lbs |

4. The capacity of tank size 2m X 3m X 4m is

- |                 |                      |
|-----------------|----------------------|
| 1. 24 litres    | 2. 240 litres        |
| 3. 24000 litres | 4. None of the above |

5. LCM of 6, 8 and 10 is

- |        |        |
|--------|--------|
| 1. 2   | 2. 120 |
| 3. 240 | 4. 480 |

6. Multiplication of  $\frac{5}{4}$  and  $\frac{2}{7}$  is

- |                   |                   |
|-------------------|-------------------|
| 1. $\frac{10}{7}$ | 2. $\frac{5}{28}$ |
| 3. $\frac{5}{14}$ | 4. $\frac{1}{14}$ |

7.  $\frac{23}{4} \div \frac{7}{6}$  is

- |                    |                     |
|--------------------|---------------------|
| 1. $\frac{23}{7}$  | 2. $\frac{161}{24}$ |
| 3. $\frac{23}{28}$ | 4. $\frac{13}{14}$  |

8.  $5\frac{3}{4}$  is equal to

- 1. 5.250
- 3. 5.340

- 2. 5.750
- 4. 5.400

9.  $\sqrt{22.09} = \text{-----}$

- 1. 47
- 3. 4.3

- 2. 43
- 4. 4.7

10.  $\sqrt{13225} = \text{.....}$

- 1. 105
- 3. 125

- 2. 115
- 4. 135

11.  $74^2$

- 1. 5476
- 3. 148

- 2. 5776
- 4. 746

12.  $107^2 =$

- 1. 1049
- 3. 11449

- 2. 1189
- 4. 10609

13. An alloy weighing 100 gm consists of 60 gm copper the remaining is zinc. The ratio of copper to zinc is

- 1. 3:2
- 3. 2:3

- 2. 3:5
- 4. 2:5

14. Ratio of width to height of window is 3:2. If height of window is 120 cm width is

- 1. 120
- 3. 180

- 2. 150
- 4. 300

15. Electricity of hyperbola is  $\frac{3}{4}$ . If distance of focus from direction is 70 mm, the vortex is

- 1. 30 mm
- 3. 40 mm

- 2. 35 mm
- 4. 70 mm

16. Speed of layer gear in a gear chain is 300 and speed of pinion in 900. If number of teeth on layer gear is 96, then number of teeth on pinion is

1. 32

2. 64

3. 96

4. 128

17. 30 % of 70 is

1. 30

2. 70

3. 21

4. 40

18. Normal Production capacity of a factory is 450 pieces. But due to power shut down 315 pieces were produced. % loss of Production is

1. 30 %

2. 70%

3. 135%

4. 35%

19.  $\frac{2}{3}$  of total area means

1. 20 %

2. 30 %

3. 66.67 %

4. 50 %

20. 60 % means

1.  $\frac{1}{6}$

2.  $\frac{10}{6}$

3.  $\frac{3}{5}$

4.  $\frac{6}{5}$

21.  $\frac{2}{3}a + \frac{3}{8}a$  is

1.  $\frac{5}{11}a$

2.  $\frac{6}{24}a$

3.  $\frac{9}{16}a$

4.  $\frac{25}{24}a$

22.  $\frac{5}{4}x - \frac{3}{7}x =$

1.  $\frac{15}{28}x$

2.  $\frac{23}{28}x$

3.  $\frac{2}{3}x$

4.  $-\frac{2}{3}x$

23.  $2ab \times 3bc =$

1.  $2ab^2c$

2.  $3ab^2c$

3.  $5ab^2c$

4.  $6ab^2c$

24.  $5xy \div 2yz =$

1.  $\frac{5}{2}$

2.  $\frac{5x}{2y}$

3.  $\frac{5x}{2z}$

4.  $\frac{5y}{2z}$

25.  $3p - 5 = 16$ ; then  $p =$

1. 3

2. 5

3. 7

4. 21

26.  $2x + y = 5$  and  $x - 3y = 6$ ; value of  $x$  is

1. 1

2. -1

3. -3

4. 3

27. If perimeter of a square is 48 mm, then area is

1.  $24 \text{ mm}^2$

2.  $48 \text{ mm}^2$

3.  $96 \text{ mm}^2$

4.  $144 \text{ mm}^2$

28. If area of circle is  $616 \text{ mm}^2$  then diameter is

1. 26 mm

2. 28 mm

3. 30 mm

4. 34 mm

29. From a Rectangular plate two squares are made. If size of the square is 20 cm total area of rectangular plate is

1.  $400 \text{ cm}^2$

2.  $800 \text{ cm}^2$

3.  $120 \text{ cm}^2$

4.  $40 \text{ cm}^2$

30. Height and diameter of cylinder is 7 cm, its volume is

1.  $270 \text{ cm}^2$

2.  $1078 \text{ cm}^2$

3.  $343 \text{ cm}^2$

4.  $86 \text{ cm}^2$

31. Surface area of sphere of 70 mm radius is

1.  $343000 \text{ mm}^2$

2.  $616.00 \text{ mm}^2$

3.  $61600 \text{ mm}^2$

4.  $343 \text{ mm}^2$

32. Base of a tent is regular hexagon. If height of tent is 5 m and base area is  $240 \text{ m}^2$  then volume of tent is

1.  $1200 \text{ m}^3$

2.  $400 \text{ m}^3$

3.  $240 \text{ m}^3$

4.  $125 \text{ m}^3$

33. Area of triangular plate is  $30 \text{ cm}^2$ . If base is 12 cm, its height is

1. 2.5 cm

2. 5 cm

3. 10 cm

4. 12 cm

34. Three equal cubes of size 10 cm is cut from a rectangular prism. Total surface area of square prism is

1.  $100 \text{ cm}^2$

2.  $1200 \text{ cm}^2$

3.  $1400 \text{ cm}^2$

4.  $3000 \text{ cm}^2$

35. Area of lateral surface of a cone if radius and slant length is in the ratio of 1 : 3 is

1.  $\pi r^2$

2.  $2\pi r^2$

3.  $3\pi r^2$

4.  $\frac{1}{3}\pi r^2$

36. The capacity of water tank if, base length is 20 cm, width is 15 cm and height is 40 cm, is

1. 12 litres

2. 120 litres

3. 1200 litres

4. 12000 litres

37. In a right angle triangle ABC,  $\angle ABC$  is  $90^\circ$   $\angle BCA$  is twice  $\angle BAC$ , then  $\sin(\angle BAC)$  is

1.  $\frac{1}{\sqrt{2}}$

2.  $\frac{1}{2}$

3. 1

4.  $\frac{\sqrt{3}}{2}$

38. Which of the following is correct

1.  $\sin^2 \theta + \cos^2 \theta = 1$

3.  $\tan \theta + \cos \theta = \sec \theta \cdot \operatorname{cosec} \theta$

2.  $1 + \tan^2 \theta = \sec^2 \theta$

4. All of the above

39. Sides of a right angle triangle are 3, 4 and 5, If smallest angle is  $\theta$ , then  $\cos \theta$  is

1.  $\frac{3}{5}$

2.  $\frac{4}{5}$

3.  $\frac{3}{4}$

4. None of the above

40.  $\sin(A-B) =$

1.  $\sin A \cdot \sin A \cdot \cos B - \cos A \sin B$

2.  $\sin A \cdot \cos B + \cos A \cdot \sin B$

3.  $\cos A \cdot \cos B - \sin A \cdot \sin B$

4.  $\cos A \cdot \cos B + \sin A \cdot \sin B$

SPACE FOR ROUGH WORK

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