ಮಾರ್ಚ್/ಏಪ್ರಿಲ್ 2025 ರ ಪರೀಕ್ಷೆ-1
MARCH/APRIL 2025 EXAMINATION-1

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[Total No. of Printed Pages : 8

[ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 17

[Total No. of Questions : 17

ಸಂಕೇತ ಸಂಖ್ಯೆ : **52** **Code No. : 52**

ವಿಷಯ : ಎಲಿಮೆಂಟ್ಸ್ ಆಫ್ ಮೆಕ್ಯಾನಿಕಲ್ ಇಂಜಿನಿಯರಿಂಗ್ - IV

Subject : ELEMENTS OF MECHANICAL ENGINEERING - IV

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ)

(Regular Fresh / Regular Repeater)

ದಿನಾಂಕ : 01. 04. 2025] [Date : 01. 04. 2025

ಸಮಯ : ಬೆಳಗ್ಗೆ 10-00 ರಿಂದ ಮಧ್ಯಾಹ್ನ 1-15 ರವರೆಗೆ] [Time : 10-00 A.M. to 1-15 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80] [Max. Marks : 80

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General Instructions to the Candidate :

1. This question paper consists of 17 questions.
2. This question paper has been sealed by reverse jacket. ***You have to cut on the right side to open the paper*** at the time of commencement of the examination ***(Follow the arrow mark)***. **Do not cut the left side to open the paper.** Check whether all the pages of the question paper are intact.
3. Follow the instructions given against the questions.
4. Figures in the right hand margin indicate maximum marks for the questions.
5. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.
6. Ensure that the Version of the question paper distributed to you and the Version printed on your admission ticket are the same.

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಹರಿಯಿರಿ

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Note : i) Answer *all* the questions.

ii) Drawing should be drawn in drawing sheet only.

iii) All dimensions are in mm.

I. **Four alternatives are given for each of the following questions / incomplete statements. Select the most appropriate alternative and write it in the answer book along with its alphabet :** 10 × 1 = 10

1. Rectilinear motion is converted into rotary motion with the help of

(A) valves and piston

(B) crank and connecting rod

(C) connecting rod and piston

(D) crank and piston

2. Four stroke sequence of operation is

(A) suction, exhaust, compression and power

(B) suction, power, exhaust and compression

(C) suction, compression, power and exhaust

(D) suction, compression, exhaust & power

3. A diesel engine has

(A) one valve (B) four valves

(C) three valves (D) two valves

4. Mother of all machine tools is

(A) Milling machine (B) Lathe

(C) Grinding machine (D) Drilling machine

5. Process of enlarging the hole size is known as

(A) Spot facing (B) Drilling

(C) Reaming (D) Boring

6. A plane has

(A) three dimensions (B) four dimensions

(C) two dimensions (D) one dimension

7. If a circular plane is inclined at 30° with the H.P. and 60° with the V.P., its side view will be

(A) Ellipse (B) Straight line

(C) Circle (D) True shape

8. If the top view of a plane is a rhombus, the object may be

(A) Square (B) Parallelogram

(C) Octagon (D) Rectangle

9. A solid has

(A) one dimension (B) three dimensions

(C) two dimensions (D) four dimensions

10. The projectors in isometric views are

(A) converging

(B) diverging

(C) parallel to plane of projection

(D) perpendicular to plane of projection

II. **Answer the following questions** :

11. a) Write the types of I.C. engines on the basis of method of cooling. 2

b) Explain any three parts of I.C. engine. 3

c) Write the comparison between four-stroke and two-stroke I.C. engines. 5

12. a) Explain E.C. engines and I.C. engines. 2

    b) Classify the different types of lathe. 3

    c) Explain with a neat diagram a four-stroke diesel I.C. engine. 5

13. a) List the different types of operation carried out on lathe. 2

    b) Explain turning operation on lathe. 3

    c) Mention the different types of drilling machines. 5

14. a) Draw a neat sketch of lathe and label the parts. 5

    b) A pentagonal lamina of edges 30 mm is resting on H.P. with one of its corners touching it such that the plane surface makes an angle of 60° with H.P. Draw its top and front views. 5

15. a) A circular lamina of 60 mm diameter rests on H.P. such that the surface of the lamina is inclined at 30° to H.P. Draw its top and front views. 5

    b) Draw the top and front views of a hexagonal pyramid of 30 mm side of base and height 70 mm resting with its base on H.P. such that one of the base edges is parallel to V.P. and nearer to it. 5

16. Draw the top and front views of a cone of 60 mm diameter of base and axis 80 mm long lying on H.P. with its axis inclined at 45° to it and parallel to V.P. 10

17. The pictorial view of an object is shown in Figure No. 1. Draw the following orthographic views and mark the dimensions : 10

i) Front view — Looking in the direction of arrow *'X'*

ii) Top view — Looking in the direction of arrow *'Z'*

iii) Side view — Looking in the direction of arrow *'Y'*.

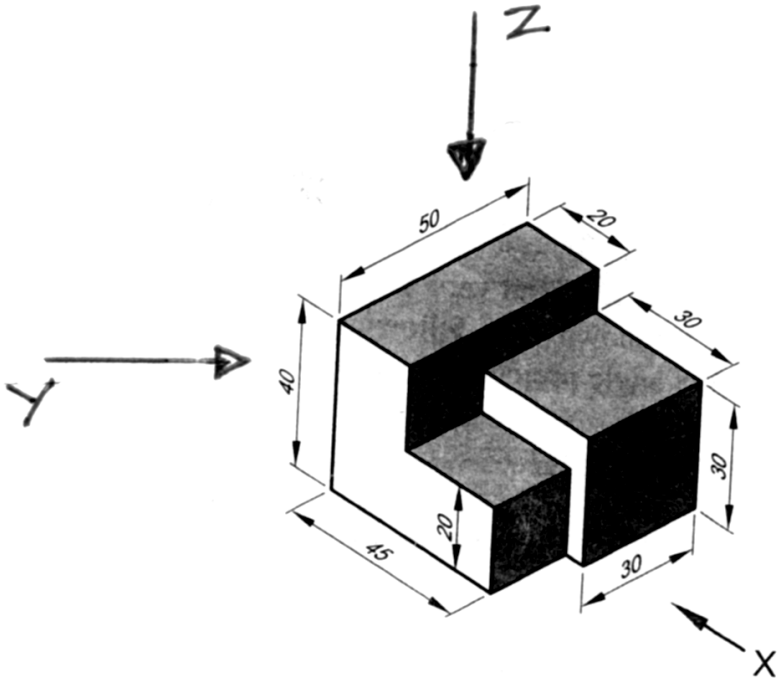

Figure No. 1

OR

Draw the isometric view of an object from the given orthographic views in Figure No. 2. 10

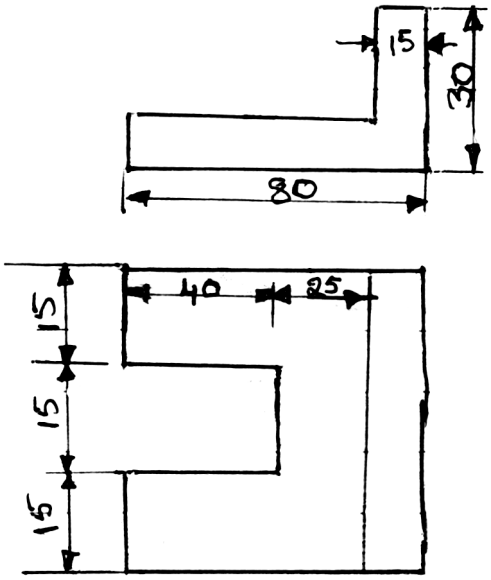

Figure No. 2