A Sl. No. : CCC

ವಿಷಯ : ಎಲಿಮೆಂಟ್ಸ್ ಆಫ್ ಮೆಕ್ಯಾನಿಕಲ್ ಅಂಡ್

ಎಲೆಕ್ಟ್ರಿಕಲ್ ಇಂಜಿನಿಯರಿಂಗ್ - **2**

Subject : **ELEMENTS OF MECHANICAL AND ELECTRICAL ENGINEERING-2**

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / **New Syllabus**)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ & ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ/ **Regular Fresh & Regular Repeater**)

General Instructions to the Candidate :

1. This Question Paper consists of 10 subjective types of 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. Check whether all the pages of the question paper are intact.

3. Follow the instructions given against both the objective and subjective types of questions.

4. Figures in the right hand margin indicate maximum marks.

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.

TEAR HERE TO OPEN THE QUESTION PAPER

Tear here

Note : Answer questions from Sections **A** & **B** as per the instructions given under them.

SECTION – A

Note : Answer *all* the questions.

1. a) List the advantages of I.C. engines. 2

   b) Write the classification of I.C. engines according to the type of fuel used. 3

   c) How are the petrol engines different from diesel engines ? 5

2. a) Define air compressor. 2

   b) Explain the applications of air compressor. 3

   c) Draw a neat sketch of single stage reciprocating air compressor and label the parts. 5

3. a) Name the different types of refrigerants. 2

   b) Why do we need refrigeration ? Give reasons. 3

   c) Draw a neat sketch of refrigeration system and label the parts. 5

4. a) Mention the types of lathes. 2

   b) Differentiate between three jaw chuck and four jaw chuck. 3

   c) With a line diagram show the important parts of an engine lathe or centre lathe. 5

OR

   a) Name the types of drilling machine. 2

   b) Explain the following drilling machine operations : 3

      i) drilling

      ii) reaming.

   c) With a neat sketch explain slot milling. 5

5. a) What is welding ? 2

   b) Explain the applications of welding. 3

   c) Draw a neat sketch of carburizing flame and explain briefly. 5

SECTION – B

Note : Answer *all* the questions.

6. a) What is self induced *emf* ? 2

   b) Differentiate between Fleming's left hand rule and right hand rule. 3

   c) Draw a neat sketch of mutually induced *emf* and explain it briefly. 5

7. a) Define average value. 2

   b) Explain the following : 3
      i) *rms* value
      ii) Instantaneous value.

   c) Draw a neat diagram of sine wave curve and mark the following on it : 5

      i) Amplitude
      ii) Cycle
      iii) Time period.

8. a) Define step-up transformer. 2

   b) Explain the working principle of *dc* generator. 3

   c) Draw a neat sketch of *dc* series motor and explain briefly. 5

   OR

   a) What is an alternator ? 2

   b) Explain the applications of transformer. 3

   c) Draw a neat sketch of an alternator and label the parts. 5

9. a) Name the types of electric iron. 2

   b) Describe the working of an electric stove. 3

   c) Draw a neat sketch of electric iron and label the parts. 5

10. a) What is transistor ? 2

    b) Explain the applications of transistor. 3

    c) The incomplete *n-p-n* transistor is given in figure. What do *x, y, z* indicate ? Mark the arrow which indicates the direction of flow of charge and functions of regions. 5