11920

2 Hours / 50 Marks　　　　Seat No. ☐☐☐☐☐☐☐☐

Instructions :　　(1)　All Questions are *compulsory.*

　　　　　　　　　　(2)　Figures to the right indicate full marks.

　　　　　　　　　　(3)　Assume suitable data, if necessary.

　　　　　　　　　　(4)　Use of Non-programmable Electronic Pocket Calculator is permissible.

　　　　　　　　　　(5)　Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.　**Attempt any NINE :**　　　　　　　　　　　　　　　　**18**

　　(a)　State the classification of steam turbine based on direction of steam flow.

　　(b)　Define Boiler efficiency.

　　(c)　State two provisions under Boiler Act for remedial measure.

　　(d)　Classification of turbine based on method of governing.

　　(e)　State different power losses in turbine.

　　(f)　List any two application of turbine.

　　(g)　Define compression ratio.

　　(h)　State four industrial application of compressed air.

　　(i)　Define free air deliver, compression ratio.

　　(j)　Give the classification of air compressor.

　　(k)　State the different criterial for selecting the compressor.

　　(l)　Classify the pump.

　　(m)　State the formula to calculate the power required to drive the centrifugal pump with meaning of each term.

　　(n)　Define suction head and delivery head in centrifugal pump.

2. **Attempt any FOUR :** 16

    (a) Differentiate between impulse turbine and reaction turbine.

    (b) Draw neat labelled sketch of Cochran boiler.

    (c) Give the detail classification of I.C. engine.

    (d) Explain with neat sketch the working of starting motor of I.C. engine.

    (e) Explain the construction and working of centrifugal pump with neat sketch.

    (f) Explain priming of a centrifugal pump.

3. **Attempt any FOUR :** 16

    (a) Differentiate between fire tube boiler and water tube boiler.

    (b) During the test on single cylinder oil engine working on the four stroke cycle and be fitted with a rope brake, the following reading are taken :

    - Effective diameter of brake reading = 625 mm.

    - Spring balance reading = 27 N.

    - Dead load on brake = 200 N.

    - Area of indictor diagram = 420 mm^2.

    - Length of indicator diagram = 60 mm.

    - Spring scale = 1 bar/mm.

    - Diameter of cylinder = 100 mm.

    - Stroke = 150 mm.

    Calculate brake power and indicated power.

    (c) List the functions of following parts in I.C. engine.

    (i)   Piston   (ii)   Crank

    (iii) Piston ring   (iv)   Cylinder

    (d) Differentiate between Reciprocating compressor and Rotary compressor.

    (e) Explain the methods of energy saving in an air compressor.

    (f) State the different faults finding in pump and remedial action taken for it.

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