

17413

21314

2 Hours / 50 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any NINE of the following:** **18**
- a) Give classification of turbines on basis of :
 - i) Action of steam
 - ii) Direction of steam flow
 - b) Define boiler efficiency.
 - c) Why starting motor is required in I.C. engine?
 - d) Define :
 - i) compression ratio
 - ii) free air delived
 - e) Draw labelled sketch of casing and impeller of centrifugal pump.

P.T.O.

- f) What is principle of impulse turbine?
- g) List various losses in turbines.
- h) State principle of reciprocating compressor.
- i) Write the equation to calculate power required by reciprocating pump. (With meaning of each term)
- j) What is basic difference between compressor and pump?
- k) Write function of impeller in a centrifugal pump.

2. Attempt any FOUR of the following:

16

- a) Draw labelled sketch of Loffler boiler.
- b) State classification of I.C. engines.
- c) Explain liquid ring vane compressor with sketch.
- d) Compare centrifugal pump and reciprocating pump on the basis of:
 - i) Principle
 - ii) Construction
 - iii) Priming
 - iv) Application
- e) Write procedure of registration of a new boiler as per Boiler Act 1923.
- f) State the faults and remedies for less efficiency of I.C. engine (any two faults and its remedies)

3. Attempt any FOUR of the following:**16**

- a) Identify the type of boiler given below:
- Cochran boiler
 - Babcock and Wilcox Boiler
 - La-mont Boiler
 - Loffler Boiler
- (Please mention water tube/fire tube)
- b) During test on single cylinder oil engine working on 4 stroke cycle fitted with ropebrake dynamometer gives following readings.
- Effective diameter of brake wheel = 634 mm
 - Speed = 500 rpm
 - Spring balance reading = 35 N
 - Dead weight load on brake = 20 kg.
 - Area of an indicator diagram = 425 mm²
 - Length of an indicator diagram = 65 mm
 - Spring scale = 1.3 bar/mm
 - Diameter of cylinder = 100 mm
 - Stroke = 152 mm
- Calculate :
- Brake Power
 - Indicated Power
- c) State the faults and its remedies for :
- Low pressure of compressor
 - Compressor stopped working

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Marks

- d) Select the pump in following cases :
 - i) Domestic water lifting
 - ii) Borewells
 - iii) Service station of Automobile
 - iv) Irrigation.
 - e) State the purpose of :
 - i) Priming in centrifugal pump
 - ii) Air vessel in reciprocating pump
 - f) Write four practical applications of compressor air.
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