

# 17413

21415

2 Hours / 50 Marks

Seat No.

--	--	--	--	--	--	--	--

**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) Use of Non-Programmable Electronic Pocket Calculator is permissible.

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

**Marks**

**1. Attempt any NINE of following :**

**18**

(a) Define the term boiler efficiency.

(b) State the functions of nozzles used with steam turbine.

(c) Define brake power and indicated power.

(d) State the classification of air compressors.

(e) List the types of pumps.

(f) Define the term degree of reaction as applied to reaction turbine.

(g) State the classification of steam turbine.

(h) Draw a labeled sketch of vane type rotary compressor.

(i) Define suction head and delivery head of centrifugal pump.

(j) What is the purpose of I.C. engine testing ?

(k) State four applications of compressed air.

**P.T.O.**

**2. Attempt any FOUR of following :****16**

- (a) Differentiate between fire tube and water tube boiler. (Minimum four points)
- (b) State the different types of impellers with their applications.
- (c) Explain the working principle of starting motor for I.C. engine.
- (d) Explain with neat sketch the working of centrifugal compressor.
- (e) Explain the priming of centrifugal pump.
- (f) State any four provisions under boiler act for remedial measures.

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

- (a) Draw a neat labeled sketch of Cochran boiler.
- (b) List the four applications of reciprocating compressor and rotary compressor.
- (c) State any four methods of energy saving in air compressor.
- (d) Explain the working of centrifugal pump with neat sketch.
- (e) Explain the functions of following parts in I.C. engine.
 

(a) Piston	(c) Piston ring
(b) Crank	(d) Cylinder
- (f) During the test on single cylinder oil engine, working on four stroke cycle and fitted with a rope brake, the following readings are taken :
  - Effective diameter of brake wheel = 630 mm
  - Dead load on brake = 200 N
  - Spring balance reading = 30 N
  - Area of indicator diagram = 420 mm<sup>2</sup>
  - Length of indicator diagram = 60 mm
  - Spring scale = 1.1 bar/mm
  - Diameter of cylinder = 100 mm
  - Stroke = 150 mm

Calculate brake power and indicated power, if speed of the engine is 430 rpm.

---