17413

11718

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

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

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

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

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

(7) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any NINE : **9 × 2 = 18**

(a) Write any two provisions under Boiler Act for remedial measure.

(b) State the functions of Steam Boiler.

(c) Define term 'Boiler Efficiency'.

(d) Enlist different power losses in steam turbine.

(e) Explain in brief the term 'frictional power' of I.C. engine.

(f) State the purpose of starting motor in I.C. Engine.

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

(h) Define the term 'Compressor Capacity'.

(i) Enlist any two methods of energy saving used in compressor.

(j) Define mean free air delivery of compressor.

(k) Write the equation of power required to drive reciprocating pump.

2. Attempt any FOUR : **4 × 4 = 16**

(a) Explain with neat sketch the working of 'Benson Boiler'.

(b) Differentiate between 'Fire tube boiler' and 'Water tube boiler'.

(c) Following observations were noted during the test of 4-stroke diesel engine :

Area of indicator diagram – 425 mm^2

Length of indicator diagram – 63 mm

Spring index – 1.2 bar/mm

Dia. of piston – 100 mm

Stroke length – 151 mm

Engine speed – 455 rpm

Calculate :

(i) Indicated mean effective pressure.

(ii) Indicated power

(d) Explain with neat sketch the working of two stage reciprocating compressor.

(e) 'Compressor makes noise' – enlist the causes and suggest remedies.

(f) Explain the working of 'Centrifugal Pump' with neat sketch.

3. Attempt any FOUR : **4 × 4 = 16**

(a) Steam at 8 bar and 0.8 dry is expanded to 1.2 bar by constant enthalpy process. Using steam table find the dryness fraction (quality of steam). Calculate change in entropy.

(b) Explain the basic principle of reaction turbine with neat sketch.

(c) Engine gives starting trouble – Enlist the causes and suggest remedies.

(d) Explain with neat sketch the working of sliding vane type compressor.

(e) State different types of impeller with their applications.

(f) Explain the term 'Priming'. Why priming is required ?

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