

MAHARASHTRA STATE BOARD OF VOCATIONAL EXAMINATIONS, MUMBAI

Examination, July, 2014

CERTIFICATE COURSE IN AIR CONDITIONING AND REFRIGERATION MECHANIC

[Ἑβρ—3 ἰεε^οε]

(BE^UHÉ N^ÖE—100)

$$B + \text{E} \rightleftharpoons \text{E} + B \quad (1)$$

- 0866E.—(1) 0'E'EQ JEQE 0'EEbE'EHa +E'EQ'Ea.
 (2) =VE'EObobEE +E0 {0'EEQ MEbE nQE'E'EE'E.
 (3) +E'EQ'EE0 E'EdhE0 +Ebi'EE E'dfE.

MÖE

1. (+) $\hat{E}^{\otimes d}$ VÉÉMÉE $\hat{J}^{\otimes d}$ ($E^{d+1}/2$) n_d :-

10

- [illegible]

(၁) **SHE** ဝါ **E**ဝဲ **R** **U** iEä E±E½ (EöEñEíE½) (**HSE**) :-

5

- (1) $BC^{\circ}E] \cup \{f\} \subset \hat{C} \cap \{f\} = \emptyset$ $\Rightarrow BC^{\circ}E \cap \{f\} = \emptyset$ $\Rightarrow BC^{\circ}E \cap \{f\} = \emptyset$
- (2) $+ \{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$
- (3) $BS^{\circ}E \cap \{f\} = \emptyset$ $\Rightarrow BC^{\circ}E \cap \{f\} = \emptyset$ $\Rightarrow BC^{\circ}E \cap \{f\} = \emptyset$
- (4) $\{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$
- (5) $+ \{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$
- (6) $\{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$ $\Rightarrow \{f\} \cap \{f\} = \{f\}$

(E0) $V \in \mathcal{V}_1 \Rightarrow V \in \mathcal{V}_2$ (E0h1a) $\{HSE\} :-$

5

' + ' Mġõ

‘ 𐌆𐌿 , NÍŋ ã

- [illegible]

(ENGLISH)

[TIME ALLOWED — 3 HOURS]

(MARKS — 100)

AIR-CONDITIONER (THEORY-I)*Instructions.*—(1) All questions are *compulsory*.(2) Figures to the right indicate *full* marks.(3) Illustrate your answer with neat sketches wherever *necessary*.**Marks**1. (a) Fill in the blanks (any *ten*) :—

10

(i) one ton refrigeration = kcal/hr.

(ii) or are used as a cooling medium for the condenser.

(iii) To measure atmospheric pressure is used.

(iv) is used for controlling pressure in flooded type evaporator.

(v) Capacity to do work is called

(vi) Liquid line is connected to outlet and inlet.

(vii) In Vapor Absorption system refrigerant is used.

(viii) Vacuum pump is also known as compressor.

(ix) To Measure internal diameter of capillary tube is used.

(x) Silica gel is used in

(xi) gauge is used for vacuuming.

(xii) To measure wet bulb temperature is used.

(b) State the following statements *true* or *false* (any *five*) :—

5

(i) An external equilizer is used in Automatic Expansion device.

(ii) Ammonia refrigerants also known as R-717.

(iii) H.R.F. is depend on expansion device.

(iv) In psychometric chart lines of dry bulb temperature are vertical.

(v) Anemometer is used to measure speed of Air.

(vi) Tachometer Is used to measure density.

(c) Match the pair (any *five*) :—

5

'A' Group**'B' Group**

(i) Heat

(1) psig

(ii) Temperature

(2) Joule

(iii) Work

(3) Kilocalories

(iv) Power

(4) Ohms

(v) Pressure

(5) Kilowatts

(vi) Resistance

(6) Kelvin.

[Turn over]

2. Attempt any *two* of the following :— 16
- (a) What is the Advantage and disadvantage of the hermetic sealed compressor ?
 - (b) What is the difference between Air cooled and Water cooled condenser ?
 - (c) Describe the process of humidification and dehumidification.
 - (d) Write the short note on thermostat ? and explain any one type of it.
3. Attempt any *two* of the following :— 16
- (a) Explain the Evaporative Condenser with diagram.
 - (b) Write the Causes and Remedies of Refrigerator no cooling.
 - (c) What is Capillary tube ? and Explain the capillary's Restriction.
 - (d) What is Compressor ? And explain the reciprocating Compressor ?
4. Attempt any *two* of the following :— 16
- (a) Explain the low pressure control with diagram.
 - (b) Explain the working of window Air Conditioner.
 - (c) What is the split Air Conditioner and State the difference between windows and split AC ?
 - (d) Write the short note on Relay.
5. Write short notes (any *four*) :— 16
- (a) Solenoid valve
 - (b) Humidity
 - (c) Temperature
 - (d) Gauge Manifold
 - (e) Psychometric Chart.
6. Attempt any *two* of the following :— 16
- (a) What is Air filter ? and short note on Air washer.
 - (b) Difference between vapor Compression and Absorption system.
 - (c) Describe the Leak Testing Method.
 - (d) Why it is necessary insulation in refrigeration system ? Write the good properties of insulating material.
-