

CBSE Class 12 Air-Conditioning and Refrigeration 2026 - Set 351

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)



Time Allowed: 3 Hours

Maximum Marks: 60

General Instructions

- (i) Please read the instructions carefully.
- (ii) This Question Paper consists of 24 questions in two sections – Section – A and Section – B.
- (iii) Section – A has Objective Type Questions whereas Section – B contains Subjective Type Questions.
- (iv) Out of the given $(6 + 18) = 24$, a candidate has to answer $(6 + 11) = 17$ questions in the allotted (maximum) time of 3 hours.
- (v) All questions of a particular section must be attempted in the correct order.
- (vi) Section – A : Objective Type Questions (30 Marks) : (a) This section has 6 questions. (b) There is no negative marking. (c) Do as per the instructions given. (d) Marks allotted are mentioned against each question/part.
- (vii) Section – B : Subjective Type Questions (30 Marks) : (a) This section has 18 questions. (b) A candidate has to do 11 questions. (c) Do as per the instructions given. (d) Marks allotted are mentioned against each question/part.

Section A

1. Answer any 4 out of the given 6 questions on Employability Skills. $4 \times 1 = 4$

1(i). Write the name of basic parts of speech.

1(ii). Which of the following is not a parameter to describe an individual's personality ?

- | | |
|-----------------|---------------------|
| (A) Openness | (B) Self-confidence |
| (C) Neuroticism | (D) Agreeableness |

1(iii). Which of the following is not a type of data in spreadsheets ?

- | | |
|-------------|-------------|
| (A) Numbers | (B) Formula |
| (C) Text | (D) Graphic |

1(iv). _____ includes a series of postures and breathing exercise to control the body and mind.

- | | |
|-----------------------|--------------|
| (A) Meditation | (B) Yoga |
| (C) Physical exercise | (D) Sleeping |

1(v). Which of the following encourage people to recycle household waste ?

- | | |
|------------------|---------------|
| (A) Educate | (B) Interview |
| (C) Recycle bank | (D) Curefit |

1(vi). State the meaning of "Motivation".

2. Answer any 5 out of the given 7 questions : $5 \times 1 = 5$

2(i). The psychrometric process in which air is cooled and humidified but no heat is supplied or rejected is called _____.

- | | |
|--------------------------------|---|
| (A) Cooling and humidification | (B) Mixing of air streams |
| (C) Dehumidification | (D) Cooling with adiabatic humidification |

2(ii). The mode of heat transfer by the actual movement of particles of the medium from one place to other is called _____.

- | | |
|----------------|------------------|
| (A) Convection | (B) Radiation |
| (C) Conduction | (D) Transmission |

2(iii). This component is used to remove the latent heat of refrigerant :

- | | |
|--------------------|----------------|
| (A) Condenser | (B) Compressor |
| (C) Capillary tube | (D) Evaporator |

2(iv). How does the L.P cutout protect the compressor ?

- | | |
|--|--|
| (A) By shutting off the compressor | (B) By increasing the refrigerant flow |
| (C) By increasing the compressor speed | (D) By decreasing the refrigerant flow |

2(v). Which one among the following is not an equipment of cold storage plant ?

- | | |
|----------------|----------------|
| (A) Compressor | (B) Evaporator |
| (C) Condenser | (D) Liquidizer |

2(vi). Which is not the core component of central A.C. ?

- | | |
|----------------|----------------|
| (A) Washer | (B) Compressor |
| (C) Evaporator | (D) Condenser |

2(vii). In a window air conditioner which one among the following types of condensers is used ?

- | | |
|-----------------------------------|----------------------------------|
| (A) Natural convection air cooled | (B) Forced convection air cooled |
| (C) Water cooled | (D) Evaporative |

3. Answer any 6 out of the given 7 questions : $6 \times 1 = 6$

3(i). Capillary tube is a type of _____.

- | | |
|----------------|---------------------|
| (A) Condenser | (B) Expansion valve |
| (C) Evaporator | (D) Compressor |

3(ii). This type of filter is not used in an air conditioning system :

- | | |
|-----------------|-------------|
| (A) Centrifugal | (B) Viscous |
| (C) Electric | (D) Dry |

3(iii). For small cold storage, the rooms are cooled _____.

- | | |
|--------------|-----------------|
| (A) by air | (B) by water |
| (C) by brine | (D) by hydrogen |

3(iv). The overload protector provides protection against the _____.

- | | |
|---------------------------------|---|
| (A) extreme compression ratio | (B) freezing up of the evaporator |
| (C) leak of air into the system | (D) overheating and burn out of motor winding |

3(v). The evaporator which is commonly used in packaged air conditioner is

- | | |
|--------------------------|------------------------------|
| (A) Finned evaporator | (B) Plate surface evaporator |
| (C) Bare-tube evaporator | (D) Both (B) and (C) |

3(vi). Addition of moisture to the air, without any change in its dry bulb temperature is known as

- | | |
|----------------------|----------------------|
| (A) Sensible heating | (B) Humidification |
| (C) Sensible cooling | (D) Dehumidification |

3(vii). Which one of the following is not a property of a thermal insulating material ?

- | | |
|---|--|
| (A) to retard the heat flow | (B) to maximize temperature fluctuations |
| (C) to minimize water vapour transmission | (D) to add strength to the walls |

4. Answer any 5 out of the given 6 questions : $5 \times 1 = 5$

4(i). The psychrometric process generally used in heat pump :

- | | |
|--------------------------------|----------------------------------|
| (A) Heating and humidification | (B) Sensible heating |
| (C) Humidification | (D) Cooling and dehumidification |

4(ii). The insulating material is best for domestic refrigerators is

- | | |
|-----------------|----------------|
| (A) Thermocole | (B) Glass wool |
| (C) Glass sheet | (D) PUF |

4(iii). The refrigerant R-11 is

- | | |
|----------------------------------|----------------------------------|
| (A) Carbon dioxide | (B) Trichloro monofluoro methane |
| (C) Monochloro trifluoro methane | (D) Trichloro trifluoro ethane |

4(iv). H.P. cutout is essential in the refrigeration systems using _____.

- | | |
|----------------------------------|---------------------------------|
| (A) water cooled condenser | (B) air cooled condenser |
| (C) natural convection condenser | (D) forced convention condenser |

4(v). In ice making, thawing of ice means

- | | |
|------------------------------|-----------------------|
| (A) Cleaning of ice | (B) Breaking of ice |
| (C) Dipping ice in hot water | (D) Freezing of water |

4(vi). A grill provided with a damper or control valve is known as

- | | |
|--------------|--------------|
| (A) Filter | (B) Fan |
| (C) Receiver | (D) Register |

5. Answer any 5 out of the given 6 questions : $5 \times 1 = 5$

5(i). Poultry meat is preserved by _____.

- | | |
|--------------------|---------------------------|
| (A) Pasteurization | (B) Thawing |
| (C) Blending | (D) Chilling and freezing |

5(ii). Which one among the following is not present in a household refrigerator ?

- | | |
|----------------|----------------|
| (A) Condenser | (B) A.H.U. |
| (C) Evaporator | (D) Compressor |

5(iii). Which one among the following is not a control device ?

- | | |
|-----------------|------------------------|
| (A) L.P cutout | (B) Overload protector |
| (C) Refrigerant | (D) H.P cutout |

5(iv). An environment friendly refrigerant used in a household refrigerator is

- | | |
|------------|----------|
| (A) R-134a | (B) R-22 |
| (C) R-11 | (D) R-12 |

5(v). Heat is transferred in a metal rod heated at one end

- | | |
|---------------------|-------------------|
| (A) by transmission | (B) by convection |
| (C) by radiation | (D) by conduction |

5(vi). Which one among the following is not a psychrometric process ?

- | | |
|-----------------------------|-----------------------------|
| (A) Dehumidification of air | (B) Ventilation of air |
| (C) Mixing of air streams | (D) Sensible cooling of air |

6. Answer any 5 out of the given 6 questions : $5 \times 1 = 5$

6(i). The freon group of refrigerants are

- | | |
|-----------------------------|------------------------------|
| (A) inorganic refrigerants | (B) halocarbon refrigerants |
| (C) azeotropic refrigerants | (D) hydrocarbon refrigerants |

6(ii). It is not a duct system –

- | | |
|---------------------------------|----------------------------------|
| (A) Reduced plenum duct system | (B) Radial perimeter duct system |
| (C) Extended plenum duct system | (D) Loop perimeter duct system |

6(iii). The relay which is operated by the heat produced due to flow of electric current –

- | | |
|----------------------------|----------------------------|
| (A) Hot wire relay | (B) Current starting relay |
| (C) Voltage starting relay | (D) Both (B) and (C) |

6(iv). What is the air temperature range in air blast freezers ?

- | | |
|--|--|
| (A) 0°C to -24°C | (B) -40°C to -80°C |
| (C) 0°C to -40°C | (D) -24°C to -40°C |

6(v). These type of fans are not used in an air conditioning plant.

- | | |
|---------------------|--------------------|
| (A) Centrifugal fan | (B) Axial flow fan |
| (C) Propeller fan | (D) Ceiling fan |

6(vi). What is the function of a drier in a refrigeration system ?

- | | |
|------------------------------------|---|
| (A) to add moisture to refrigerant | (B) to clean the condenser |
| (C) to clean the evaporator | (D) to absorb moisture from the refrigerant |

Section B

Answer any 3 out of the given 5 questions on Employability Skills. Answer each question in 20-30 words. $3 \times 2 = 6$

7. State four key communication skills.
8. Enlist the four ways to manage stress.
9. Why is text formatting necessary in a spreadsheet ? Mention any two ways of formatting content in a spreadsheet.
10. Write any four government schemes that helps small scale entrepreneurs to gain capital.
11. Mention four plants, which are used to make our home toxin free.

Answer any 3 out of the given 5 questions in 20-30 words each : $3 \times 2 = 6$

12. Describe the process of 'Sensible Heating'.
13. What are thermal insulating materials ?
14. Write the steps to produce a transparent and good quality ice.
15. Describe the importance of a filter in an air conditioning unit.
16. Write the function of a condenser.

Answer any 2 out of the given 3 questions in 30-50 words each : $2 \times 3 = 6$

17. Explain the different modes of 'Heat Transfer'.
18. Describe the psychrometric process of 'Mixing of two air streams'.
19. Enumerate the properties of refrigerant R-22.

Answer any 3 out of the given 5 questions in 50-80 words each : $3 \times 4 = 12$

20. Explain the 'downward system' of air distribution with a neat sketch.
21. Describe the function of a capillary tube. Write its advantages and disadvantages.
22. Explain high pressure cutout with a neat sketch.
23. Draw a neat and labelled diagram of an ice plant.
24. Explain the central air conditioning system.

- End of Question Paper -