

CBSE | DEPARTMENT OF SKILL EDUCATION

AIR CONDITIONING AND REFRIGERATION (SUBJECT CODE – 827)

CLASS XII (SESSION 2021-2022) MARKING SCHEME FOR TERM - II

Max. Time Allowed: 1 ½ Hours (90 min)

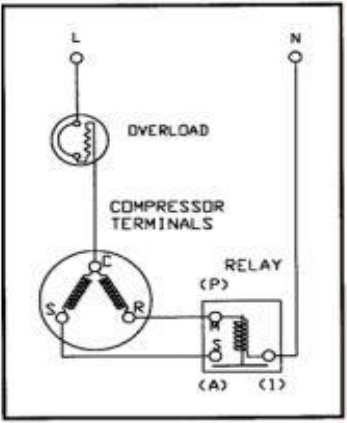
Max. Marks: 30

General Instructions:

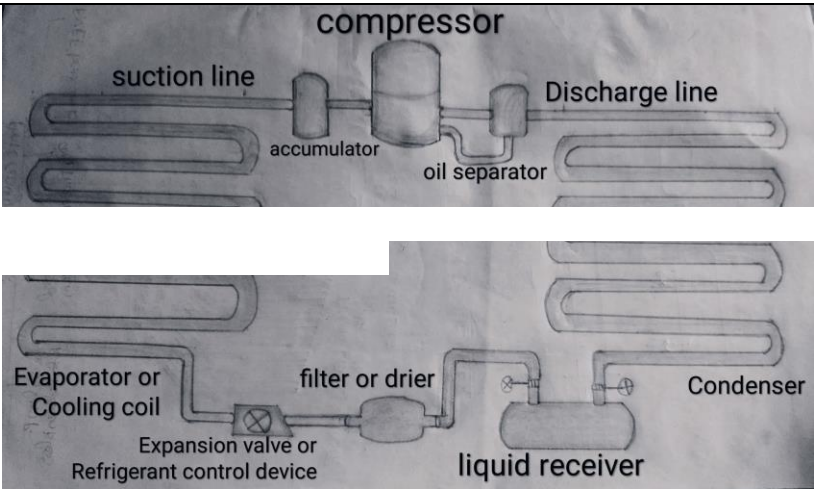
The marking scheme is suggestive. The students must be given credit for their creative and critical thinking while answering the questions.

SECTION A

Q. No	ANSWER	MARKS
01.	It's an open ended question Children may be given credit for creative and logical answers	1
02.	There are five aspects to the process of reading: phonics, phonemic awareness, vocabulary, reading comprehension and fluency.	1
03.	Quality refers to how good something is compared to other similar things.	1
04.	Productivity is commonly defined as a ratio between the output volume and the volume of inputs.	1
05.	01. Minimize the use of single-use plastic things. 02. Always carry your cloth bag while going shopping for reducing the plastic bags uses.	2
06.	Green jobs improve energy and raw materials efficiency, limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems and support adaptation to the effects of climate change. Like Agriculture , Solar energy, wind energy etc.	2
SECTION B		
07.	Suction pressure and Discharge pressure respectively.	1
08.	Only centrifugal compressor can handle R11 refrigerant. (Explanation- Only centrifugal compressor can handle large volume of the refrigerant and work at lower pressures, due to which only this compressor is used with refrigerant R11.)	1
09	Control the temperature of the refrigerator.	1
10.	A basic definition of electricity is a form of energy that results from the flow of charged particles.	1
11.	Anemometer is use to measure the speed of wind and its direction.	1
12.	For the distribution of Air.	1
13.	Forced circulation type cooling	1

14	<p>Overload protection relays prevent motor damage by monitoring the current in the motor circuit and breaking the circuit when an electrical overload or a phase failure is detected.</p> 	1+1=2
15	<p>A high pressure control is a switch which controls the high side pressure within certain range by controlling the working of compressor motor. In this way it prevents the overload conditions on the motor due to excessive high head pressure. High pressure bellow of the control is connected with high side of the compressor by mean of copper tubing.</p>	1+1=2
16	<p>Relay is an electrical operated switch used to disconnect the starting winding or starting capacitor from the circuit when the motor reaches at its rated speed. Types of Relays. 01. Current coil or amperage type relay. 02. Potential or voltage type relay. 03. Hot wire relay.</p>	1+1=2
17	<p>Desirable properties of ideal refrigerant. 01. It should be non poisonous. 02. It should be non-explosive. 03. It should be non-flammable. 04. It should be non corrosive to metal.</p>	1/2X4=2
18	<p>It is a switch which disconnects the electric supply when the oil pressure goes below normal in the compressor. It consist two bellows one bellow is connected to the low pressure side and other to the oil pump where it build the oil pressure. It is connected in series circuit of electric motor.</p>	2
19	<p>01.Commpressor 02.Condesing Unit 03.Evporative Unit 04. Control Unit 05.Supply Fan 06. Humidifier 07.Boiler 08. Chiller 09.Filters 10. Ducts, Supply and Return (Any Six)</p>	1/2X6=3

20		03										
21	<p>In an air conditioned building the air moves from one place to another. During its movement dust and bacteria comes in contact with it. Therefore, it is necessary to clean the return air before using it again. Air filters are used for cleaning the air The air filters are of following types.</p> <p>01.Viscous Filters</p> <p>02.Electric Filters</p>	03										
22	<p>In a refrigerating machine the function of evaporator is to evaporate the liquid refrigerants in an enclosed space by absorbing heat introduced by insulation loss and warm material placed in it.</p> <p>It has been manufactured in various designs. The design of the evaporator depends upon the purpose for which it is to be used. It is located just after the refrigerant control device in refrigerating machine.</p> <p>Types.</p> <p>01.Air cooling Coil (Direct System)</p> <p>02. Liquid cooling Coil (Indirect system.)</p>	03										
23.	<table border="1"> <thead> <tr> <th>Possible Cause</th> <th>Test and Remedy</th> </tr> </thead> <tbody> <tr> <td>1. Improper Level of cabinet.</td> <td>Check the level of the refrigerator cabinet and if necessary adjust the level screws at the base of cabinet.</td> </tr> <tr> <td>2. Things placed improperly in the refrigerator</td> <td>Do not over crowd the shelves with bottles and dishes. Otherwise these will make noise.</td> </tr> <tr> <td>3. Rattling of tubes</td> <td>Check all the tubes, If they are touching with each other, adjust or clamp them as necessary.</td> </tr> <tr> <td>4. Loose sealed unit or condenser mounting.</td> <td>Check the mounting of the sealed unit and condenser, if it is loose, tight it. This type of noise generally heard at the starting and stopping of unit.</td> </tr> </tbody> </table>	Possible Cause	Test and Remedy	1. Improper Level of cabinet.	Check the level of the refrigerator cabinet and if necessary adjust the level screws at the base of cabinet.	2. Things placed improperly in the refrigerator	Do not over crowd the shelves with bottles and dishes. Otherwise these will make noise.	3. Rattling of tubes	Check all the tubes, If they are touching with each other, adjust or clamp them as necessary.	4. Loose sealed unit or condenser mounting.	Check the mounting of the sealed unit and condenser, if it is loose, tight it. This type of noise generally heard at the starting and stopping of unit.	1+1+1+1=4
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24	<p>Gas Charging in the Machine follows the following steps. Before charging the machine check all type of leakage in the machine.</p> <ol style="list-style-type: none"> 01. Read the name plate of the machine and note the refrigerants and its quantity charged in the machine. 02. Take the cylinder full of gas required to charge. 03. Weight the cylinder and record its weight. 04. Connect the gas cylinder with the line valve through a compound gauge with the help of charging line. Open the cylinder valve slightly and purge the charging line. 05. Open the line valve and slowly charge the gas. 06. Operate the machine, maintain its low side pressure as required and charge the exact amount of gas by weight. 07. See if the evaporator and condenser have attained the proper temperature. 08. Check the condition of the sealed unit, it should not run overloaded. After full satisfaction, stop the machine, close line valve disconnects gas cylinder pinch charging line of the sealed unit and sealed its end. 	1/2X8=4
25	 <p>Draw the diagram with neat labels of parts.</p>	4