

# **SRM VALLIAMMAI ENGINEERING COLLEGE**

**(An Autonomous Institution)**

SRM Nagar, Kattankulathur– 603203

**DEPARTMENT OF GENERAL ENGINEERING**

**QUESTION BANK**



**I SEMESTER**

**1901008 - BASIC CIVIL AND MECHANICAL ENGINEERING**

**Academic Year 2022-2023**

*Prepared by*

**Mr. R.SRINIVASAN, Assistant Professor (Sr.G)**

Department of Mechanical Engineering

# SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203.

## DEPARTMENT OF GENERAL ENGINEERING

### QUESTION BANK

#### UNIT I : SCOPE OF CIVIL AND MECHANICAL ENGINEERING

**Overview of Civil Engineering** - Civil Engineering contributions to the welfare of Society–Specialized sub disciplines in Civil Engineering – Structural, Construction, Geotechnical, Environmental, Transportation and Water Resources Engineering.

**Overview of Mechanical Engineering** - Mechanical Engineering contributions to the welfare of Society–Specialized sub disciplines in Mechanical Engineering - Production, Automobile, and Energy Engineering  
- Interdisciplinary concepts in Civil and Mechanical Engineering.

#### PART A (2 MARKS)

1	Describe the contribution of civil engineering to the society?	BTL-2	Understand
2	Mention the disciplines of civil engineering?	BTL-1	Remember
3	List the objectives of Structural Engineering.	BTL-1	Remember
4	Classify the types of Structures.	BTL-3	Apply
5	List the common structural materials.	BTL-1	Remember
6	Define structural engineering.	BTL-1	Remember
7	Classify geotechnical engineering.	BTL-3	Apply
8	Describe the modes of transport in civil engineering.	BTL-1	Remember
9	List the objectives of water resources.	BTL-1	Remember
10	Discriminate water scarcity and water stress.	BTL-5	Evaluate
11	State the contribution of Mechanical Engineering to society.	BTL-1	Remember
12	State few specialized sub disciplines in Mechanical Engineering.	BTL-2	Understand
13	Mention few interdisciplinary concepts in civil and Mechanical Engineering.	BTL-1	Remember
14	Specify the functions of Production in Engineering.	BTL-2	Understand
15	List the components of an Automobile.	BTL-1	Remember
16	What is meant by Energy?	BTL-2	Understand
17	Summarize the different forms of Energy.	BTL-2	Understand
18	Specify the various sources of energy	BTL-1	Remember
19	State the concepts covered under Fluid Mechanics.	BTL-3	Apply
20	Specify the concepts covered under Strength of Materials	BTL-1	Remember
21	Describe E-vehicles?	BTL-2	Understand
22	List the disadvantages of automobile Engineering.	BTL-1	Remember
23	What are the steps to be followed in production of component.	BTL-1	Remember

24	Describe the important properties to be consider before manufacturing of component.		BTL-2	Understand
25	What are the types of electric vehicles?		BTL-1	Remember
<b>PART B (13 MARKS)</b>				
1	Describe in details the contribution of civil engineering for the welfare of the society.	(13)	BTL-2	Understand
2	Describe the significance of various specialized fields in civil engineering.	(13)	BTL-2	Understand
3	Summarize the different modes of transportation.	(13)	BTL-5	Evaluate
4	Explain the role of civil engineers in construction engineering.	(13)	BTL-2	Understand
5	(i) What are the criteria for selection of construction materials?	(6)	BTL-1	Remember
	(ii) Explain the role of civil engineer in Transportation and Environmental Engineering.	(7)	BTL-2	Understand
6	(i) What are all the solution needed for to improve the ground and soil?	(6)	BTL-4	Analyze
	(ii) What are all the factors affecting the water resources.	(7)	BTL-4	Analyze
7	(i) State the significance of Geotechnical Engineering.	(6)	BTL-2	Understand
	(ii) Explain the various techniques used in Geotechnical Engineering.	(7)	BTL-1	Remember
8	Explain in detail the contributions of Mechanical Engineering to the welfare of Society.	(13)	BTL-2	Understand
9	Explain in details the significance of Production Engineering.	(13)	BTL-1	Remember
10	(i) State the significance of Automobile Engineering.	(6)	BTL-4	Analyze
	(ii) Describe the functions of Automobile Engineering.	(7)	BTL-2	Understand
11	(i) Specify the significance of Energy Engineering.	(6)	BTL-4	Analyze
	(ii) Narrate the functions of Energy Engineering.	(7)	BTL-5	Evaluate
12	(i) Describe in details the functions of Fluid Mechanics.	(6)	BTL-4	Analyze
	(ii) Specify the significance of Fluid Machinery.	(7)	BTL-4	Analyze
13	Describe the various forms and sources of energy.	(13)	BTL-4	Analyze
14	Describe in details the significance and functions of strength of materials.	(13)	BTL-5	Evaluate
15	Illustrate with neat sketch about wind energy system.	(13)	BTL-3	Apply
16	Explain the process of structural Engineering.	(13)	BTL-1	Remember
17	Explain detail about electrical vehicle with neat sketch.	(13)	BTL-1	Remember
18	What are the different types of hybrid electric vehicle and explain any one with neat sketch.	(13)	BTL-2	Understand

**PART C (15 MARKS)**

1	What are all the factors consider to be the site preparation for construction.	(15)	BTL-4	Analyze
2	Explain the Environmental engineering and its significance.	(15)	BTL-1	Remember
3	Illustrate the major component in Automobile system and explain with neat sketch.	(15)	BTL-2	Understand
4	Explain the Production process and explain any one metal production process.	(15)	BTL-2	Understand
5	Explain in detail about recent trend in Energy Engineering.	(15)	BTL-2	Understand



## UNIT II SURVEYING AND CIVIL ENGINEERING MATERIALS

**Surveying:** Objects–classification–principles–measurements of distances–angles–leveling– determination of areas–contours - examples.

**Civil Engineering Materials:** Bricks–stones–sand–cement–concrete–steel - timber - modern materials.

### PART A (2 MARKS)

1	What is the objectives of surveying.	BTL-1	Remember
2	Define surveying.	BTL-2	Understand
3	What are the objectives of leveling.	BTL-1	Remember
4	Discuss the role of surveying briefly.	BTL-2	Understand
5	Name two types of compass.	BTL-1	Remember
6	Differentiate WCB from RB.	BTL-4	Analyze
7	What do you meant by change point?	BTL-1	Remember
8	Convert the following WCB to RB (i) $160^{\circ}30$ (ii) $272^{\circ}40$	BTL-5	Evaluate
9	The reduced bearing of a line AB is $S65^{\circ}10'E$ . What will be the whole circle bearing of the line AB?	BTL-5	Evaluate
10	Name the methods for calculating reduced levels.	BTL-1	Remember
11	Define line of collimation.	BTL-2	Understand
12	Describe ranging of a line.	BTL-2	Understand
13	Define bearing of a line.	BTL-1	Remember
14	Define curing of concrete.	BTL-1	Remember
15	List out the various uses of cement concrete.	BTL-1	Remember
16	Classify the types of steel sections.	BTL-3	Apply
17	Contrast quarrying and dressing of stones.	BTL-1	Remember
18	List the classification of rocks.	BTL-1	Remember
19	What are the constituents of Portland cement?	BTL-1	Remember
20	List the common field test on aggregate to check its quality of sand.	BTL-1	Remember
21	Classify the types of cement.	BTL-3	Apply
22	What are the various stages of manufacturing of concrete?	BTL-1	Remember
23	List the commercial forms of steels.	BTL-3	Apply
24	Describe the composition of brick.	BTL-1	Remember
25	Classify bricks.	BTL-3	Apply

<b>PART B (13 MARKS)</b>				
1	Summarises the principles of surveying and explain their procedural steps.	(13)	BTL-2	Understand
2	(i) Deduce the back bearings for the following fore bearing. AB: $80^{\circ}30'$ , BC: $150^{\circ}15'$ , CD: $270^{\circ}20'$ and DE: $325^{\circ}30'$ .	(7)	BTL-5	Evaluate
	(ii) Deduce WCB for the following quadrant bearings. (a) PA: $N 15^{\circ}E$ (b) PB: $S 25^{\circ}45' E$ (c) PC: $S 45^{\circ} 30' W$ (d) PD: $N 10^{\circ}W$	(6)	BTL-5	Evaluate
3	Explain in detail about the principle of Leveling.	(13)	BTL-1	Remember
4	Explain with neat sketch about the working principle of transit theodolite instrument used in surveying.	(13)	BTL-4	Analyze
5	Explain with neat sketch about the working principle of prismatic compass.	(13)	BTL-2	Understand
6	Illustrate the working principle of surveyors's compass.	(13)	BTL-3	Apply
7	The area enclosed between the survey line, irregular boundary line, first and last offsets by Mean-ordinate, Simson and trapezoidal rule. The following perpendicular offsets were taken at 10m intervals from Integrate a survey line to an irregular boundary line: 0.00, 3.20, 5.40, 6.00, 4.21, 3.88, 6.20, and 0.00.	(13)	BTL-5	Evaluate
8	Explain with neat sketch a dumpy level and indicate its parts.	(13)	BTL-2	Understand
9	What is meant by hardening of cement? Explain the properties and uses of cement.	(13)	BTL-1	Remember
10	Tabulate the ingredients of cement along with their properties.	(13)	BTL-1	Remember
11	Explain with neat sketch about manufacturing of Portland cement.	(13)	BTL-1	Remember
12	Describe the tests conducted on building bricks.	(13)	BTL-4	Analyze
13	(i) State the qualities of good building stone. (ii) List the qualities of good bricks.	(13)	BTL-3	Apply
14	Explain with neat sketch the 'rise and fall method' of leveling.	(13)	BTL-4	Analyze
15	Describe in detail about different types of concrete.	(13)	BTL-1	Remember
16	Explain with sketch about types steel structure and its application.	(13)	BTL-1	Remember
17	Describe in detail about various stages of manufacturing of concrete.	(13)	BTL-4	Analyze
18	Demonstrate about the field test on sand.	(13)	BTL-3	Apply
<b>PART C (15 MARKS)</b>				
1	List and demonstrate the different types of instrument used in chain surveying.	(15)	BTL-3	Apply
2	The following staff readings were observed successively with a level, the instrument have been moved after third, sixth and eighth readings. 3.150, 1.605, 0.920, 2.600, 2.900, 1.125, 0.605, 2.265 m. calculate the R.L of	(15)	BTL-5	Evaluate

	points if the first reading was taken with a staff held on a bench mark of 110.0 m. perform the usual arithmetic check.			
3	Explain in detail about types of concrete.	(15)	BTL-1	Remember
4	(i) Explain the properties of cement concrete.	(10)	BTL-1	Remember
	(ii) What are all the requirements of good cement?	(5)		
5	The following staff readings were taken with a level, the instrument has been moved after third and seventh readings as 2.340, 1.725, 0.625, 2.890, 2.200, 1.420, 0.805, 0.505, 1.485, 0.980. Enter the above readings in a page of level book and calculate the reduced levels of the points if the first was taken with a staff held on a bench mark of 100.00m.	(15)	BTL-5	Evaluate



### UNIT III BUILDING COMPONENTS AND STRUCTURES

**Foundations:** Types of foundations–Bearing capacity and settlement–Requirement of good foundations.

**Civil Engineering Structures:** Brick masonry–stonemasonry–beams–columns–lintels–roofing–flooring– plastering – floor area, carpet area and floor space index – Types of Bridges and Dams – water supply – sources and quality of water – Rain water harvesting – introduction to high way and rail way.

#### PART A (2 MARKS)

1	Define safe bearing capacity of soil.	BTL-1	Remember
2	What is meant by stretcher course in brick masonry.	BTL-1	Remember
3	Define headed in brick masonry.	BTL-1	Remember
4	Give any two objectives of foundation.	BTL-2	Understand
5	Define poison's ratio.	BTL-1	Remember
6	Classify foundation used for buildings.	BTL-3	Apply
7	What is meant by queen closer.	BTL-2	Understand
8	Define plastering.	BTL-1	Remember
9	Classify the types of flooring.	BTL-3	Apply
10	Describe functions of a dam.	BTL-2	Understand
11	List the function of columns briefly.	BTL-1	Remember
12	Define mortar. List the types of mortar.	BTL-5	Evaluate
13	Classify the types of masonry.	BTL-3	Apply
14	Describe grillage foundation briefly.	BTL-5	Evaluate
15	Contrast Stretcher and Header in masonry.	BTL-2	Understand
16	Describe brick masonry.	BTL-4	Analyze
17	Define flooring.	BTL-1	Remember
18	List types of bridges.	BTL-1	Remember
19	Classify the types of dams.	BTL-3	Apply
20	Discuss about beams in a building.	BTL-2	Understand
21	List the requirements of the water which is supplying	BTL-1	Remember
22	What are the causes of failure of foundation?	BTL-2	Understand
23	Define roof.	BTL-1	Remember
24	Define (i) Long column (ii) Short column	BTL-1	Remember
25	List the requirements of flooring.	BTL-2	Understand



<b>PART B (13 MARKS)</b>				
1	What are the types of foundation? Write down the requirements of good foundation.	(13)	BTL-1	Remember
2	Explain with neat sketches about Shallow foundation.	(13)	BTL-1	Remember
3	Demonstrate with neat sketches about Pile foundation.	(13)	BTL-3	Apply
4	Compare the different types of pile foundation.	(13)	BTL-4	Analyze
5	(i) List the requirement of good foundation.	(6)	BTL-1	Remember
	(ii) Define stress and strain write their expressions.	(7)	BTL-1	Remember
6	Discuss the different type of bonds in masonry.	(13)	BTL-2	Understand
7	Distinguish between English bond and Flemish bond.	(13)	BTL-2	Understand
8	Classify the brick masonry and stone masonry.	(13)	BTL-3	Apply
9	(i) Explain the major components of column forms.	(6)	BTL-5	Evaluate
	(ii) Compare brick masonry with stone masonry.	(7)	BTL-4	Analyze`
10	Describe with neat sketches any two types of bridges.	(13)	BTL-1	Remember
11	Describe the different stages in plastering.	(13)	BTL-1	Remember
12	Differentiate storage dam and diversion dam.	(13)	BTL-4	Analyze
13	Explain the different types of beams also mention its applications.	(13)	BTL-5	Evaluate
14	Explain in detail about plastering methods.	(13)	BTL-5	Evaluate
15	Describe the factors influencing the selection of dams.	(13)	BTL-1	Remember
16	Write short notes about rainwater harvesting with neat sketch.	(13)	BTL-2	Understand
17	Write short notes about machine foundation with neat sketch.	(13)	BTL-2	Understand
18	Explain in detail about slow sand filter and rapid sand filter on the purification of water.	(13)	BTL-4	Analyze`
<b>PART C (15 MARKS)</b>				
1	Describe briefly the methods for improving the bearing capacity of the soil.	(15)	BTL-2	Understand
2	What are all the factors affecting the foundation? Explain its causes and precautions.	(15)	BTL-4	Analyze
3	(i) Summarize the various sources of water.	(8)	BTL-5	Evaluate
	(ii) Explain the quality of the water.	(7)	BTL-4	Analyze
4	Explain the components used for rain water harvesting system.	(15)	BTL-2	Understand
5	List the points to be observed in the construction of following			
	(i) Brick masonry	(8)	BTL-1	Remember
	(ii) Stone masonry	(7)		

## UNIT IV INTERNAL COMBUSTION ENGINES AND POWER PLANTS

Classification of Power Plants - Internal combustion engines as automobile power plant – Working principle of Petrol and Diesel Engines – Four stroke and two stroke cycles – Comparison of four stroke and two stroke engines – Working principle of steam, Gas, Diesel, Hydro - electric and Nuclear Power plants – working principle of Boilers, Turbines, Reciprocating Pumps (single acting and double acting) and Centrifugal Pumps.

### PART A (2 MARKS)

1	List out the main components of an I.C. engine.	BTL-1	Remember
2	Define the term: Compression Ratio.	BTL-1	Remember
3	What do you understand by Scavenging.	BTL-2	Understand
4	What is the function of spark plug and fuel plug.	BTL-1	Remember
5	Compare water cooling and air cooling system.	BTL-5	Evaluate
6	List the function of moderator in a nuclear power plant.	BTL-2	Understand
7	Illustrate the layout of water cooling system.	BTL-3	Apply
8	Differentiate two stroke and four stroke engines.	BTL-2	Understand
9	Distinguish between I.C Engine and E.C. Engine	BTL-2	Understand
10	Differentiate fire tube boiler and water tube boiler.	BTL-2	Understand
11	Compare petrol and diesel engine.	BTL-5	Evaluate
12	What is the use of surge tank in hydropower plants.	BTL-1	Remember
13	Identify the practical application of positive displacement pumps.	BTL-1	Remember
14	When draft tube is in atmosphere list out the difficulties of turbine.	BTL-4	Analyze
15	List the materials that can be used as moderator in a Nuclear reactor.	BTL-2	Understand
16	Define (i) air pre-heater (ii) economizer.	BTL-1	Remember
17	Classify the types of Nuclear power plant along with practical application.	BTL-3	Apply
18	Compare nuclear fission and nuclear fusion.	BTL-5	Evaluate
19	Define centrifugal pump.	BTL-2	Understand
20	Give four important factors to be considered for selecting hydroelectric power plant.	BTL-4	Analyze
21	State the main components of steam power plant.	BTL-1	Remember
22	Mention the types of ignition systems used in petrol engine.	BTL-2	Understand
23	State the function of choke in a petrol engine.	BTL-1	Remember
24	Define fuel injector.	BTL-2	Understand
25	Classification of reciprocating pump.	BTL-3	Apply

**PART B (13 MARKS)**

1	Define the terms: Bore, Stroke, TDC, BDC, Clearance volume, Swept volume and compression ratio, air fuel ratio and thermal efficiency of an IC engine.	(13)	BTL-1	Remember
2	Describe the principal, parts and functions of a Four stroke diesel engine With neat sketch.	(13)	BTL-1	Remember
3	Describe the principal, parts and functions of a Four Stroke Petrol engine with neat sketch.	(13)	BTL-1	Remember
4	Describe the principal, parts and functions of a Two Stroke Diesel engine with neat sketch.	(13)	BTL-2	Understand
5	Describe the principal, parts and functions of a Two Stroke Petrol engine with neat sketch.	(13)	BTL-2	Understand
6	Briefly explain the working principle of Cochran boiler with neat sketch.	(13)	BTL-3	Apply
7	(i) Differentiate fire tube and water tube boiler.	(5)	BTL-2	Understand
	(ii) Draw the neat sketch of a high pressure La- Mont boiler and explain its description.	(8)	BTL-1	Remember
8	Describe the principal, parts and functions of a BENSON boiler with neat sketch.	(13)	BTL-2	Understand
9	Describe the working principle of thermal power plant and explain the advantages and disadvantages.	(13)	BTL-2	Understand
10	Describe the working principle of centrifugal pump with neat sketch.	(13)	BTL-1	Remember
11	Demonstrate the layout of nuclear power plant and explain the nuclear fission and nuclear fusion and its merits and demerits.	(13)	BTL-3	Apply
12	Explain the working principle of hydroelectric power plant with neat sketch and state the merits and demerits.	(13)	BTL-2	Understand
13	(i) Differentiate between the Impulse and Reaction turbine.	(7)	BTL-2	Understand
	(ii) Mention the advantages and disadvantages of Kaplan and Francis turbine.	(6)	BTL-2	Understand
14	Explain the working principle of Kaplan and Francis turbine with neat sketch.	(13)	BTL-2	Understand
15	Describe the working principle of reciprocating pump with neat sketch.	(13)	BTL-2	Understand
16	Explain the working principle of open and closed cycle gas turbine power plant with neat sketch and state the merits and demerits.	(13)	BTL-2	Understand
17	(i) Explain the term Priming. (ii) Application of centrifugal pump.	(4) (9)	BTL-1	Remember
18	Illustrate with neat sketch about multi stage centrifugal pump.	(13)	BTL-3	Apply

**PART C (15 MARKS)**

1	Compare four stroke and two stroke engines.	(15)	BTL-5	Evaluate
2	Compare petrol ( SI) engines and diesel (CI) engines.	(15)	BTL-5	Evaluate
3	(i) What do you mean by boiler mountings? briefly explain their functions.	(7)	BTL-2	Understand
	(ii) Describe the function of salient component of centrifugal pump with suitable diagram.	(8)	BTL-1	Remember
4	Illustrate, how the power is developed by the diesel power plant and explain.	(15)	BTL-3	Apply
5	Explain with neat sketch about the following in the centrifugal pump			
	(i) Volute casing	(8)	BTL-2	Understand
	(ii) Vortex casing	(7)		



## UNIT V REFRIGERATION AND AIR CONDITIONING SYSTEM

Terminology of Refrigeration and Air Conditioning. Principle of vapour compression and absorption system– Layout of typical domestic refrigerator–Window and Split type room Air conditioner.

### PART A (2 MARKS)

1	Define the term air conditioning.	BTL-1	Remember
2	Define the term refrigeration.	BTL-1	Remember
3	Define ton of refrigeration.	BTL-1	Remember
4	Describe COP of the refrigeration system.	BTL-1	Remember
5	What do you understand by refrigerating effect?	BTL-2	Understand
6	List the application of refrigeration.	BTL-2	Understand
7	Write the classification of refrigerants with examples.	BTL-3	Apply
8	Define refrigerant	BTL-1	Remember
9	Classify the refrigeration system.	BTL-3	Apply
10	Differentiate Vapour compression and Vapour absorption refrigeration system.	BTL-4	Analyze
11	Classify the types of Air conditioner.	BTL-3	Apply
12	Compare refrigeration and air conditioning.	BTL-4	Analyze
13	How do you evaluate the capacity of a room air conditioner?	BTL-4	Analyze
14	Mention the use of capillary tube.	BTL-1	Remember
15	Design the layout of a domestic refrigerator.	BT-6	Create
16	Define psychometric.	BTL-1	Remember
17	State the properties of refrigerant	BTL-2	Understand
18	Define humidity.	BTL-1	Remember
19	List any four refrigerants using in domestic refrigerator.	BTL-3	Apply
20	Distinguish between DBT and WBT.	BTL-2	Understand
21	State the function of compressor.	BTL-1	Remember
22	Define relative humidity	BTL-2	Understand
23	Write the chemical name of (i) R-22 (ii) R-717	BTL-1	Remember
24	What is dew point temperature?	BTL-2	Understand
25	Define year-round air conditioning system.	BTL-1	Remember

**PART B (13 MARKS)**

1	List the comfort requirements of conditioned air in an air conditioned Room. Explain what are (1) Dry bulb, Wet bulb and Dew point temperatures (2) Humidity and Relative humidity (3) Dry and moist air (4) Distinguish between DBT and WBT.	(13)	BTL-1	Remember
2	Describe with neat sketch of vapour absorption refrigeration system.	(13)	BTL-1	Remember
3	Describe with neat sketch of vapour compression refrigeration system. List out the components and their functions.	(13)	BTL-1	Remember
4	Distinguish between 'CFC Refrigerant', 'HFC Refrigerant', and 'HCFC Refrigerant'. Mention also one common refrigerant under each category.	(13)	BTL-2	Understand
5	Compare the vapour absorption refrigeration system and vapour compression refrigeration system. Give either reason or brief explanation for each point of comparison.	(13)	BTL-4	Analyze
6	How is the air conditioning system classified?	(13)	BTL-1	Remember
7	Illustrate with neat sketch the working principle of a window type room air conditioner.	(13)	BTL-3	Apply
8	Explain with neat sketch the working principle of a split type room air Conditioner.	(13)	BTL-4	Analyze
9	Compare the window and split type air conditioner and its advantages and disadvantages.	(13)	BTL-5	Evaluate
10	Draw the layout of an air conditioner and explain the principle of operation.	(13)	BT-6	Create
11	State the principle of refrigeration. Write down the properties of ideal Refrigerants.	(13)	BTL-3	Apply
12	Explain with neat sketch of Domestic refrigerator.	(13)	BTL-5	Evaluate
13	Explain the following terminologies 1.Refrigeration effect 2.Ton of Refrigeration 3. Coefficient of performance 4.Specific Heat.	(13)	BTL-3	Apply
14	(ii) Briefly explain the commonly used Refrigerants.	(5)	BTL-2	Understand
	(i) Distinguish between Refrigeration and Air conditioning.	(4)	BTL-4	Analyze
	(iii) What are all the basic requirements of comfort Air conditioning ?	(4)	BTL-4	Analyze
15	Illustrate the indoor unit of split air conditioner and explain its elements.	(13)	BTL-3	Apply
16	Explain with neat sketch about the working principle of central air conditioning systems.	(13)	BTL-1	Remember
17	Write short notes about (i) Direct central air conditioning systems	(7)	BTL-2	Understand

	(ii) Indirect central air conditioning systems.	(6)		
18	Illustrate about HVAC system and explain the working principle with suitable example.	(13)	BTL-3	Apply

**PART C (15 MARKS)**

1	(i) Briefly explain the Application of refrigeration system.	(8)	BTL-4	Analyze
	(ii) what are all the important actions involved in the operation of the air conditioner.	(7)		
2	How to stored the food items in refrigeration system effectively?	(15)	BTL-4	Analyze
3	What are all the terminology used in air conditioning system?	(15)	BTL-1	Remember
4	Explain the detail about the application of air conditioning in both comfort and industries.	(15)	BTL-1	Remember
5	Explain with neat sketch of multi split air conditioner.	(15)	BTL-1	Remember

