SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur– 603203

DEPARTMENTOF MECHANICAL ENGINEERING

QUESTION BANK

I SEMESTER

GE3133 - BASIC CIVIL AND MECHANICAL ENGINEERING

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Prepared by

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DEPARTMENT OF GENERAL ENGINEERING

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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?	CO1	BTL-2	Understand
2	Mention the disciplines of civil engineering?	CO1	BTL-1	Remember
3	List the objectives of Structural Engineering.	CO1	BTL-1	Remember
4	Classify the types of Structures.	CO1	BTL-3	Apply
5	List the common structural materials.	CO1	BTL-1	Remember
6	Define structural engineering.	CO1	BTL-1	Remember
7	Classify geotechnical engineering.	CO1	BTL-3	Apply
8	Describe the modes of transport in civil engineering.	CO1	BTL-1	Remember
9	List the objectives of water resources.	CO1	BTL-1	Remember
10	Discriminate water scarcity and water stress.	CO1	BTL-5	Evaluate
11	State the contribution of Mechanical Engineering to society.	CO1	BTL-1	Remember
12	State few specialized sub disciplines in Mechanical Engineering.	CO1	BTL-2	Understand
13	Mention few interdisciplinary concepts in civil and Mechanical Engineering.	CO1	BTL-1	Remember
14	Specify the functions of Production in Engineering.	CO1	BTL-2	Understand
15	List the components of an Automobile.	CO1	BTL-1	Remember
16	What is meant by Energy?	CO1	BTL-2	Understand
17	Summarize the different forms of Energy.	CO1	BTL-2	Understand
18	Specify the various sources of energy	CO1	BTL-1	Remember
19	State the concepts covered under Fluid Mechanics.	CO1	BTL-3	Apply
20	Specify the concepts covered under Strength of Materials	CO1	BTL-1	Remember
21	Describe E-vehicles?	CO1	BTL-2	Understand
22	List the disadvantages of automobile Engineering.	CO1	BTL-1	Remember
23	What are the steps to be followed in production of component.	CO1	BTL-1	Remember

24	Describe the important properties to be consider before manufacturing of component.	CO1	BTL-2	Understand	
25	What are the types of electric vehicles?	CO1	BTL-1	Remember	
PART- B (13 MARKS)					
1	Describe in details the contribution of civil engineering for the welfare of the society.	(13)	CO1	BTL-2	Understand
2	Describe the significance of various specialized fields in civil engineering.	(13)	CO1	BTL-2	Understand
3	Summarize the different modes of transportation.	(13)	CO1	BTL-5	Evaluate
4	Explain the role of civil engineers in construction engineering.	(13)	CO1	BTL-2	Understand
5	(i) What are the criteria for selection of construction materials?	(6)	CO1	BTL-1	Remember
	(ii) Explain the role of civil engineer in Transportation and Environmental Engineering.	(7)	CO1	BTL-2	Understand
6	(i) What are all the solution needed for to improve the ground and soil?	(6)	CO1	BTL-4	Analyze
	(ii) What are all the factors affecting the water resources.	(7)	CO1	BTL-4	Analyze
7	(i) State the significance of Geotechnical Engineering.	(6)	CO1	BTL-2	Understand
	(ii) Explain the various techniques used in Geotechnical Engineering.	(7)	CO1	BTL-1	Remember
8	Explain in detail the contributions of Mechanical Engineering to the welfare of Society.	(13)	CO1	BTL-2	Understand
9	Explain in details the significance of Production Engineering.	(13)	CO1	BTL-1	Remember
10	(i) State the significance of Automobile Engineering.	(6)	CO1	BTL-4	Analyze
	(ii) Describe the functions of Automobile Engineering.	(7)	CO1	BTL-2	Understand
11	(i) Specify the significance of Energy Engineering.	(6)	CO1	BTL-4	Analyze
	(ii) Narrate the functions of Energy Engineering.	(7)	CO1	BTL-5	Evaluate
12	(i) Describe in details the functions of Fluid Mechanics.	(6)	CO1	BTL-4	Analyze
	(ii) Specify the significance of Fluid Machinery.	(7)	CO1	BTL-4	Analyze
13	Describe the various forms and sources of energy.	(13)	CO1	BTL-4	Analyze
14	Describe in details the significance and functions of strength of materials.	(13)	CO1	BTL-5	Evaluate
15	Illustrate with neat sketch about wind energy system.	(13)	CO1	BTL-3	Apply
16	Explain the process of structural Engineering.	(13)	CO1	BTL-1	Remember
17	Explain detail about electrical vehicle with neat sketch.	(13)	CO1	BTL-1	Remember
18	What are the different types of hybrid electric vehicle and explain any one with neat sketch.	(13)	CO1	BTL-2	Understand

PART C (15 MARKS)					
1	What are all the factors consider to be the site preparation for construction.	(15)	CO1	BTL-4	Analyze
2	Explain the Environmental engineering and its significance.	(15)	CO1	BTL-1	Remember
3	Illustrate the major component in Automobile system and explain with neat sketch.	(15)	CO1	BTL-2	Understand
4	Explain the Production process and explain any one metal production process.	(15)	CO1	BTL-2	Understand
5	Explain in detail about recent trend in Energy Engineering.	(15)	CO1	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.	CO2	BTL-1	Remember
2	Define surveying.	CO2	BTL-2	Understand
3	What are the objectives of leveling.	CO2	BTL-1	Remember
4	Discuss the role of surveying briefly.	CO2	BTL-2	Understand
5	Name two types of compass.	CO2	BTL-1	Remember
6	Differentiate WCB from RB.	CO2	BTL-4	Analyze
7	What do you meant by change point?	CO2	BTL-1	Remember
8	Convert the following WCB to RB (i) 160°30 (ii) 272°40	CO2	BTL-5	Evaluate
9	The reduced bearing of a line AB is S65°10'E. What will be the whole circle bearing of the line AB?	CO2	BTL-5	Evaluate
10	Name the methods for calculating reduced levels.	CO2	BTL-1	Remember
11	Define line of collimation.	CO2	BTL-2	Understand
12	Describe ranging of a line.	CO2	BTL-2	Understand
13	Define bearing of a line.	CO2	BTL-1	Remember
14	Define curing of concrete.	CO2	BTL-1	Remember
15	List out the various uses of cement concrete.	CO2	BTL-1	Remember
16	Classify the types of steel sections.	CO2	BTL-3	Apply
17	Contrast quarrying and dressing of stones.	CO2	BTL-1	Remember
18	List the classification of rocks.	CO2	BTL-1	Remember
19	What are the constituents of Portland cement?	CO2	BTL-1	Remember
20	List the common field test on aggregate to check its quality of sand.	CO2	BTL-1	Remember
21	Classify the types of cement.	CO2	BTL-1	Remember
22	What are the various stages of manufacturing of concrete?	CO2	BTL-1	Remember
23	List the commercial forms of steels.	CO2	BTL-3	Apply
24	Describe the composition of brick.	CO2	BTL-1	Remember
25	Classify bricks.	CO2	BTL-1	Remember

PART B (13 MARKS)					
1	Summaries the principles of surveying and explain their procedural steps.	CO2	(13)	BTL-2	Understand
2	(i) Deduce the back bearings for the following fore bearing. AB: 80°30', BC: 150°15', CD: 270°20'and DE: 325°30'.	CO2	(7)	BTL-5	Evaluate
	(ii) Deduce WCB for the following quadrant bearings. (a)PA: N 15°E (b) PB: S 25°45' E (c) PC: S 45° 30' W (d) PD: N 10°W	CO2	(6)	BTL-5	Evaluate
3	Explain in detail about the principle of Leveling.	CO2	(13)	BTL-1	Remember
4	Explain with neat sketch about the working principle of transit theodolite instrument used in surveying.	CO2	(13)	BTL-2	Understand
5	Explain with neat sketch about the working principle of prismatic compass.	CO2	(13)	BTL-2	Understand
6	Illustrate the working principle of surveyos's compass.	CO2	(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.	CO2	(13)	BTL-5	Evaluate
8	Explain with neat sketch a dumpy level and indicate its parts.	CO2	(13)	BTL-2	Understand
9	What is meant by hardening of cement? Explain the properties and uses of cement.	CO2	(13)	BTL-1	Remember
10	Tabulate the ingredients of cement along with their properties.	CO2	(13)	BTL-1	Remember
11	Explain with neat sketch about manufacturing of Portland cement.	CO2	(13)	BTL-1	Remember
12	Describe the tests conducted on building bricks.	CO2	(13)	BTL-4	Analyze
13	(i) State the qualities of good building stone. (ii) List the qualities of good bricks.	CO2	(13)	BTL-4	Analyze
14	Explain with neat sketch the 'rise and fall method' of leveling.	CO2	(13)	BTL-2	Understand
15	Describe in detail about different types of concrete.	CO2	(13)	BTL-1	Remember
16	Explain with sketch about types steel structure and its application.	CO2	(13)	BTL-1	Remember
17	Describe in detail about various stages of manufacturing of concrete.	CO2	(13)	BTL-1	Remember
18	Demonstrate about the field test on sand.	CO2	(13)	BTL-3	Apply
PART C (15 MARKS)					
1	List and demonstrate the different types of instrument used in chain surveying.	(15)	CO2	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)	CO2	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)	CO2	BTL-1	Remember
4	(i) Explain the properties of cement concrete.	(10)	CO2	BTL-1	Remember
	(ii) What are all the requirement of good cement?	(5)	CO2		
5	The following staff reading were taken with a level, the instrument have 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)	CO2	BTL-5	Evaluate

UNIT III BUILDING COMPONENTS AND STRUCTURES

Foundations: Types of foundations – Requirement of good foundations.

Civil Engineering Structures: Brick masonry–stonemasonry–beams–columns–lintels–roofing–flooring–plastering – floor area, carpet area and floor space index – Rain water harvesting – introduction to high way and rail way.

PART A (2 MARKS)

1	Define safe bearing capacity of soil.	CO3	BTL-1	Remember
2	What is meant by stretcher course in brick masonry.	CO3	BTL-1	Remember
3	Define headed in brick masonry.	CO3	BTL-1	Remember
4	Give any two objectives of foundation.	CO3	BTL-2	Understand
5	Define poison's ratio.	CO3	BTL-1	Remember
6	Classify foundation used for buildings.	CO3	BTL-3	Apply
7	What is meant by queen closer.	CO3	BTL-2	Understand
8	Define plastering.	CO3	BTL-1	Remember
9	Classify the types of flooring.	CO3	BTL-3	Apply
10	Describe functions of a dam.	CO3	BTL-2	Understand
11	List the function of columns briefly.	CO3	BTL-1	Remember
12	Define mortar. List the types of mortar.	CO3	BTL-5	Evaluate
13	Classify the types of masonry.	CO3	BTL-3	Apply
14	Describe grillage foundation briefly.	CO3	BTL-5	Evaluate
15	Contrast Stretcher and Header in masonry.	CO3	BTL-2	Understand
16	Describe brick masonry.	CO3	BTL-4	Analyze
17	Define flooring.	CO3	BTL-1	Remember
18	List any four advantages of using railways	CO3	BTL-1	Remember
19	Why "I" sections are preferred in rails?	CO3	BTL-3	Apply
20	What are the various types of water available on the earth?	CO3	BTL-2	Understand
21	List the requirements of the water which is supplying	CO3	BTL-1	Remember
22	What are the causes of failure of foundation?	CO3	BTL-2	Understand
23	Define roof.	CO3	BTL-1	Remember
24	Define (i) Long column (ii) Short column	CO3	BTL-1	Remember
25	List the requirements of flooring.	CO3	BTL-2	Understand

PART B (13 MARKS)					
1	What are the types of foundation? Write down the requirements of good foundation.	(13)	CO3	BTL-1	Remember
2	Explain with neat sketches about Shallow foundation.	(13)	CO3	BTL-1	Remember
3	Demonstrate with neat sketches about Pile foundation.	(13)	CO3	BTL-3	Apply
4	Compare the different types of pile foundation.	(13)	CO3	BTL-4	Analyze
5	(i) List the requirement of good foundation.	(6)	CO3	BTL-1	Remember
	(ii) Define stress and strain write their expressions.	(7)	CO3	BTL-1	Remember
6	Discuss the different type of bonds in masonry.	(13)	CO3	BTL-2	Understand
7	Distinguish between English bond and Flemish bond.	(13)	CO3	BTL-2	Understand
8	Classify the brick masonry and stone masonry.	(13)	CO3	BTL-3	Apply
9	(i) Explain the major components of column forms.	(6)	CO3	BTL-2	Understand
	(ii) Compare brick masonry with stone masonry.	(7)	CO3	BTL-4	Analyze`
10	Explain about various sources of water supply with suitable example.	(13)	CO3	BTL-1	Remember
11	Describe the different stages in plastering.	(13)	CO3	BTL-1	Remember
12	Explain the rainwater harvesting done in house with suitable illustration.	(13)	CO3	BTL-2	Understand
13	Explain the different types of beams also mention its applications.	(13)	CO3	BTL-5	Evaluate
14	Explain in detail about plastering methods.	(13)	CO3	BTL-5	Evaluate
15	Explain the classification of highway engineering with suitable illustration.	(13)	CO3	BTL-1	Remember
16	Write short notes about rainwater harvesting with neat sketch.	(13)	CO3	BTL-2	Understand
17	Write short notes about machine foundation with neat sketch.	(13)	CO3	BTL-2	Understand
18	Explain in detail about slow sand filter and rapid sand filter on the purification of water.	(13)	CO3	BTL-2	Understand
PART C (15 MARKS)					
1	Describe briefly the methods for improving the bearing capacity of the soil.	(15)	CO3	BTL-2	Understand
2	What are all the factors affecting the foundation? Explain its causes and precautions.	(15)	CO3	BTL-4	Analyze
3	List the factors to determine the water quality. Explain the quality of the water.	(15)	CO3	BTL-4	Analyze
4	Explain the components used for rain water harvesting system.	(15)	CO3	BTL-2	Understand
5	List the points to be observed in the construction of following (i) Brick masonry (ii) Stone masonry	(8) (7)	CO3	BTL-1	Remember

UNIT IV INTERNAL COMBUSTION ENGINES AND POWER PLANTS

Introduction to internal combustion engine – Working principle of Petrol and Diesel Engines – Four stroke and two stroke cycles – Comparison of four stroke and two stroke engines-Introduction to Electric vehicle. Classification of Power Plants-Working principle of steam, Gas, Diesel, Hydro – electric and Nuclear Power plants-working principle of Cochran, Lamont, Benson Boilers.

PART A (2 MARKS)

1	List out the main components of an I.C. engine.	CO4	BTL-1	Remember
2	Define the term: Compression Ratio.	CO4	BTL-1	Remember
3	What do you understand by Scavenging.	CO4	BTL-2	Understand
4	What is the function of spark plug and fuel plug.	CO4	BTL-1	Remember
5	Compare water cooling and air cooling system.	CO4	BTL-5	Evaluate
6	List the function of moderator in a nuclear power plant.	CO4	BTL-2	Understand
7	Illustrate the layout of water cooling system.	CO4	BTL-1	Remember
8	Differentiate two stroke and four stroke engines.	CO4	BTL-2	Understand
9	Distinguish between I.C Engine and E.C. Engine	CO4	BTL-2	Understand
10	Differentiate fire tube boiler and water tube boiler.	CO4	BTL-2	Understand
11	Compare petrol and diesel engine.	CO4	BTL-5	Evaluate
12	What is the use of surge tank in hydro-power plants.	CO4	BTL-1	Remember
13	Identify the practical application of positive displacement pumps.	CO4	BTL-1	Remember
14	When draft tube is in atmosphere list out the difficulties of turbine.	CO4	BTL-1	Remember
15	List the materials that can be used as moderator in a Nuclear reactor.	CO4	BTL-2	Understand
16	Define (i) air pre-heater (ii) economizer.	CO4	BTL-1	Remember
17	Classify the types of Nuclear power plant along with practical application.	CO4	BTL-3	Apply
18	Compare nuclear fission and nuclear fusion.	CO4	BTL-5	Evaluate
19	List the components of electric vehicle.	CO4	BTL-2	Understand
20	Give four important factors to be considered for selecting hydroelectric power plant.	CO4	BTL-1	Remember
21	State the main components of steam power plant.	CO4	BTL-1	Remember
22	Mention the types of ignition systems used in petrol engine.	CO4	BTL-2	Understand
23	State the function of choke in a petrol engine.	CO4	BTL-1	Remember
24	Define fuel injector.	CO4	BTL-2	Understand
25	List the advantages of electric vehicle.	CO4	BTL-1	Remember

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)	CO4	BTL-1	Remember
2	Describe the working principle of four stroke diesel engine with neat sketch.	(13)	CO4	BTL-1	Remember
3	Describe the working principle of four stroke petrol engine with neat sketch.	(13)	CO4	BTL-1	Remember
4	Describe the working principle of two stroke diesel engine with neat sketch.	(13)	CO4	BTL-2	Understand
5	Describe the working principle of two stroke petrol engine with neat sketch.	(13)	CO4	BTL-2	Understand
6	Briefly explain the working principle of Cochran boiler with neat sketch.	(13)	CO4	BTL-1	Remember
7	Draw the neat sketch of a high pressure La- Mont boiler and explain its description.	(13)	CO4	BTL-2	Understand
8	Describe the principal, parts and functions of a BENSON boiler with neat sketch.	(13)	CO4	BTL-2	Understand
9	Describe the working principle of thermal power plant and explain the advantages and disadvantages.	(13)	CO4	BTL-2	Understand
10	Differentiate internal combustion engine and electric vehicle.	(13)	CO4	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)	CO4	BTL-3	Apply
12	Explain the working principle of hydroelectric power plant with neat sketch and state the merits and demerits.	(13)	CO4	BTL-2	Understand
13	(i) Differentiate between the Impulse and Reaction turbine.	(7)	CO4	BTL-2	Understand
	(ii) Mention the advantages and disadvantages of Kaplan and Francis turbine.	(6)	CO4	BTL-2	Understand
14	Explain the working principle of Kaplan turbine with neat sketch.	(13)	CO4	BTL-2	Understand
15	Explain the working principle of Francis turbine with neat sketch.	(13)	CO4	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)	CO4	BTL-2	Understand
17	Differentiate fire tube and water tube boiler.	(13)	CO4	BTL-1	Remember
18	Illustrate with neat sketch about the working principle of electric vehicle.	(13)	CO4	BTL-3	Apply

PART C (15 MARKS)					
1	Compare four stroke and two stroke engines.	(15)	CO4	BTL-2	Understand
2	Compare petrol (SI) engines and diesel (CI) engines.	(15)	CO4	BTL-2	Understand
3	(i) What do you mean by boiler mountings? briefly explain their functions.	(7)	CO4	BTL-2	Understand
	(ii) Describe the function of salient component of centrifugal pump with suitable diagram.	(8)	CO4	BTL-1	Remember
4	Illustrate, how the power is developed by the diesel power plant and explain.	(15)	CO4	BTL-1	Remember
5	Elaborate the safety measures to be considered in a nuclear power plant.	(15)	CO4	BTL-2	Understand

UNIT V REFRIGERATION AND AIR CONDITIONING SYSTEM

Reciprocating Pumps -single acting and double acting and Centrifugal Pumps .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.	CO5	BTL-1	Remember
2	Define the term refrigeration.	CO5	BTL-1	Remember
3	Define ton of refrigeration.	CO5	BTL-1	Remember
4	Describe COP of the refrigeration system.	CO5	BTL-1	Remember
5	What do you understand by refrigerating effect?	CO5	BTL-2	Understand
6	List the application of refrigeration.	CO5	BTL-2	Understand
7	Write the classification of refrigerants with examples.	CO5	BTL-3	Apply
8	Define refrigerant	CO5	BTL-1	Remember
9	Describe the working principle of reciprocating pump.	CO5	BTL-3	Apply
10	Differentiate Vapour compression and Vapour absorption refrigeration system.	CO5	BTL-4	Analyze
11	Classify the types of Air conditioner.	CO5	BTL-3	Apply
12	Compare refrigeration and air conditioning.	CO5	BTL-4	Analyze
13	How do you evaluate the capacity of a room air conditioner?	CO5	BTL-4	Analyze
14	Mention the use of capillary tube.	CO5	BTL-1	Remember
15	Design the layout of a domestic refrigerator.	CO5	BT-6	Create
16	Describe the working principle of centrifugal pump.	CO5	BTL-1	Remember
17	State the properties of refrigerant	CO5	BTL-2	Understand
18	List the principal parts of centrifugal pump.	CO5	BTL-1	Remember
19	List any four refrigerants using in domestic refrigerator.	CO5	BTL-3	Apply
20	Distinguish between DBT and WBT.	CO5	BTL-2	Understand
21	State the function of compressor.	CO5	BTL-1	Remember
22	Define relative humidity	CO5	BTL-2	Understand
23	Write the chemical name of (i) R-22 (ii) R-717	CO5	BTL-1	Remember
24	List the principal parts of reciprocating pump.	CO5	BTL-2	Understand
25	Define year-round air conditioning system.	CO5	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)	CO5	BTL-1	Remember
2	Describe with neat sketch of vapour absorption refrigeration system.	(13)	CO5	BTL-1	Remember
3	Describe with neat sketch of vapour compression refrigeration system. List out the components and their functions.	(13)	CO5	BTL-1	Remember
4	Distinguish between 'CFC Refrigerant', 'HFC Refrigerant', and 'HCFC Refrigerant'. Mention also one common refrigerant under each category.	(13)	CO5	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)	CO5	BTL-2	Understand
6	How is the air conditioning system classified?	(13)	CO5	BTL-1	Remember
7	Illustrate with neat sketch the working principle of a window type room air conditioner.	(13)	CO5	BTL-2	Understand
8	Explain with neat sketch the working principle of a split type room air Conditioner.	(13)	CO5	BTL-2	Understand
9	Compare the window and split type air conditioner and its advantages and disadvantages.	(13)	CO5	BTL-2	Understand
10	Draw the layout of an air conditioner and explain the principle of operation.	(13)	CO5	BT-6	Create
11	Explain the working principle of reciprocating pump with neat sketch.	(13)	CO5	BTL-2	Understand
12	Explain with neat sketch of Domestic refrigerator.	(13)	CO5	BTL-2	Understand
13	Explain the following terminologies 1.Refrigerationeffect 2.Ton of Refrigeration 3. Coefficient of performance 4.Specific Heat.	(13)	CO5	BTL-2	Understand
14	Explain the working principle of centrifugal pump with neat sketch.	(5)	CO5	BTL-2	Understand
15	Illustrate the indoor unit of split air conditioner and explain its elements.	(13)	CO5	BTL-3	Apply
16	Explain with neat sketch about the working principle of central air conditioning systems.	(13)	CO5	BTL-1	Remember
17	Write short notes about (i) Direct central air conditioning systems (ii) Indirect central air conditioning systems.	(7) (6)	CO5	BTL-2	Understand
18	Differentiate between reciprocating pump and centrifugal pump.	(13)	CO5	BTL-2	Understand

PART C (15 MARKS)					
1	(i) Briefly explain the Application of refrigeration system.	(8)	CO5	BTL-4	Analyze
	(ii) what are all the important actions involved in the operation of the air conditioner.	(7)	CO5		
2	Illustrate about HVAC system and explain the working principle with suitable example.	(15)	CO5	BTL-4	Analyze
3	What are all the terminology used in air conditioning system?	(15)	CO5	BTL-1	Remember
4	Explain with neat sketch about the following in the centrifugal pump (i) Volute casing (ii) Vortex casing	(8) (7)	CO5	BTL-1	Remember
5	Explain with neat sketch of multi split air conditioner.	(15)	CO5	BTL-1	Remember