**SIR ISSAC NEWTON COLLEGE OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**Subject Code: GE6251**

**Subject Name: BASIC CIVIL AND MECHANICAL ENGINEERING**

**Question Bank**

**UNIT-I**

**SURVEYING AND CIVIL ENGINEERING MATERIALS**

**PART-A**

1 What is surveying?

2 What is the objective of surveying?

3 What is the difference between a plan and a map?

4 what are the two major types of surveying.

5 Differentiate between plane surveying and geodetic surveying?

6 How the surveying is classified based on purpose.

7 State the principles of surveying.

8 What are the accessories used in chain surveying?

9 Define bearing of a line, fore Bearing & Back Bearing.

10 What are the systems of bearing?

11 What is meant by local attraction & state its effects?

12 Define leveling and state its objectives

13 Define benchmark and state its effects

14 How rocks are classified?

15 What is quarrying & dressing of stones

16 What are the uses of stones?

17 State the uses of cement?

18 State the properties of cement concrete.

19 What is proportioning of concrete?

20 Define workability of concrete.

22 What are the instruments used for chain survey?

23 Define leveling. What are the objects of leveling? Draw and explain neat sketch of Dumpy level and

leveling staff.

**PART-B**

1 Explain with neat sketch prismatic compass and principles of compass surveying.

2 Explain with neat sketch surveyor compass and principles of compass surveying.

3 Explain with neat sketch 20m chain and principles of chain surveying.

4 What are the requirements of good building stone & state important varieties of Building stones

5 What are the different types of cement? Explain the properties and uses?

6 What are the requirements of good building stone & state important varieties of Building stones

7 State the objectives and requirements of good foundation?

8 What are the different types of cement? Explain the properties and uses?

9 List out the different types of bond in brick wall and explain any three in detail.

**UNIT-II**

**BUILDING COMPONENTS AND STRUCTURES**

**PART-A**

1 State the objectives and requirements of good foundation?

2 Differentiate between shallow foundation and deep foundation.

3 Define bearing capacity of soil.

4 How the stone masonry is classified? How the Brick masonry is classified?

5 Define the following terms in stone masonry (terminology).

i) Corbel

ii) Cornice

iii) Coping

iv) String course

v) Through stone

6 Compare stone masonry and Brick masonry

7 Why bonding in brick wall is essential?

8 State the special features of English and Flemish bond.

9 Classify the types of column based on its conditions.

10 State the purpose of plastering.

11 Define Dam, Bridge and classify them.

12 What are the basic components of a bridge?

13 What is the purpose of reinforced concrete?

14 Define factor of safety.

15 Define substructure and super structure. Define Bearing capacity of soil.

16 Define foundation. Purpose of foundation.

17 Define brick masonry. Why bonding in brick wall is essential?

18 Define stone masonry. Why bonding in stone is essential?

19 State the special features of English and Flemish bond.

20 Define stress and strain

21 Define modulus of rigidity

22 Define hooks law

23 Define young’s modulus

24 Define rigidity modulus

25 Define bulk modulus

26 Define proportional limit

27 Define elastic limit

28 Define yield stress, ultimate stress and ultimate stress.

29 Define shear stress and shear strain

30 Define factor of safety

32 Define lateral strain, longitudinal strain, superficial strain and volumetric strain.

33 Define interior design.

34 Define internal and external force

35 Define units. And different system of units.

36 List out the types of stress and strain.

**PART-B**

1 List the six important points to be considered while selecting a site for Construction of Dam.

2 Explain differential leveling with a neat sketch.

3 Explain with neat sketch the different types of piles.

4 List out the different types of bond in brick wall and explain any three in detail.

5 Draw a neat sketch of a reinforced cement concrete column and explain.

6 Explain the types of floor suitable for residential and commercial building.

7 Explain briefly the different types of pitched roof coverings.

8 I. Define foundation

II. Classify the foundation according to soil bearing capacity.

III. Briefly explain with neat sketch of shallow foundation and deep foundation.

9 Briefly explain with neat sketch of three types of machine foundation

10. Define Bridge List out types of bridge.

11. Briefly explain the different types of bridge.

12 Define Bridge Classify the bridge according to type of super structure. Briefly explain the classification of bridges.

13 Define Dam List out types of DAM. Briefly explain the different types of DAM.

14 Define interior design. Discussed the principles of interior design

15 Define landscaping. Discussed the principles of landscaping.

16 Short notes on plastering.

17 Define flooring. List the types of flooring. Briefly explain the different types of flooring.

18 Define roofing. List the types of roofing. Briefly explain the different types of roofing.

19 Give Short notes on Beam and its Types. Give Short notes on Columns and its Types. Give Short notes on Lintels and its Types.

**UNIT- III**

**POWER PLANT ENGINEERING**

**PART-A**

1 What are the types of power plant?

2 What are the parts of thermal power plant?

3 What is the purpose of Surge tank in hydro power plant?

4 Classify the hydro power plant.

5 What is the function of Draft tube?

6 Define Nuclear Fission. Write chain reaction.

7 What is the function of Moderator?

8 Write down the Merits and Demerits of Diesel engine power plant.

9 List out the parts of the Gas turbine power plant.

10 Define Pump and Turbine.

11 Define Cavitations.

12 Define Primiming in Centrifugal Pump.

13 What is impulse turbine? Give example

14 What is Reaction turbine? Give example.

15 Give Shorts notes on Positive and non positive displacements pumps

16 Classify the pumps.

17 Define cavitations.

**PART-B**

1 Explain working principle of thermal Power plant With Neat sketch.

2 Explain working principle of Nuclear Power plant With Neat sketch.

3 a) Explain working principle of Hydro Electric Power plant With Neat sketch.

b) Write its advantages and Disadvantages

4 a) Explain working principle of Diesel Engine Power plant With Neat sketch.

b) Write its advantages and Disadvantages

5 a) Explain working principle of Gas turbine Power plant With Neat sketch.

b) Write its advantages and Disadvantages

6 a) With the help of a neat sketch explain the working of Reciprocating Pump (single acting and double

acting)

b) With the help of a neat sketch explain the working of Impulse Turbine

7 a) With the help of a neat sketch explain the working of Centrifugal Pump

b) With the help of a neat sketch explain the working of reaction Turbine

8 a) With the help of a neat sketch explain the working of Centrifugal Pump

b) With the help of a neat sketch explain the working of reaction Turbine.

**UNIT IV**

**INTERNAL COMBUSTION ENGINES**

**PART-A**

1 What is heat engine?

2 Define I.C Engine and E.C. Engine

3 Classify the I.C engine.

4 List out the Part of the I.C. Engine

5 Define the terms: Top Dead Center, Bottom Dead Center.

6 Define the term: Compression Ratio.

7 What do you understand by Scavenging?

8 Define Boiler.

9 Classify Boilers.

10 Define fire tube boiler and water tube boiler.

11 List out the Boiler Mountings and Accessories.

12 What is the Purpose of a fusible Plug?

13 First law of thermodynamic. Second law of thermodynamic.

14 Define stoke length.

**PART-B**

1 Describe the principal parts and functions of a Four Stroke Diesel engine With Neat Sketch

2 Describe the principal parts and functions of a Four Stroke Petrol engine With Neat Sketch

3 Describe the principal parts and functions of a Two Stroke Diesel engine With Neat Sketch

4 Describe the principal parts and functions of a Two Stroke Petrol engine With Neat Sketch

5 Describe the principal parts and functions of any one high pressure boiler With Neat Sketch

6 Describe the principal parts and functions of Babcock Wilcox boiler With Neat Sketch

7 Describe the principal parts and functions of any one Low pressure boiler With Neat Sketch

8 Describe the principal parts and functions of Benson boiler With Neat Sketch.

**UNIT V**

**REFRIGERATION & AIR CONDITIONING**

**PART-A**

1 Define Refrigeration and air conditioning.

2 Define refrigerant

3 Define tone of refrigeration and C.O.P.

4 Define refrigerant. Give some examples of refrigerant.

5 Give some properties of good refrigerant.

6 Mention some of the applications of refrigeration.

7 Define relative humidity

8 Define psychometric.

9 Define DBT and WBT.

10 What is a dew point temperature?

11 Define humidity.

12 Mention the classification of air conditioning system.

13 Define year–round air conditioning system.

**PART-B**

1 Explain the principle and working of vapor compression refrigeration system

2 Explain the principle and working of the vapor absorption refrigeration system

3 Give the comparison of vapor absorption with vapor compression refrigeration system

4 Explain the summer air-conditioning system for hot and dry weather

5 With the neat sketch explain the layout of a window room air conditioning

6 Explain the layout of the split type air conditioning system

7 Mention and explain the different types of refrigerant used

8 Explain the advantages and disadvantages of the window air conditioning unit.