

AM/FM RADIO RECEIVER AND FAULT ANALYSIS

Time : 3 hrs

PRACTICAL

Marks : 50

- Study the Basic Concept of Communication system.
- Draw and Explain Block diagram of AM Radio Receiver.
- Draw and Explain Block diagram of FM Radio Receiver.
- Study the Amplitude Modulation with wave diagram.
- Study the Frequency Modulation with wave diagram.
- Draw and Explain Demodulator circuit
- Assembling a medium wave transistor/radio receiver.
- Measuring voltages at different test points of a transistor/radio receiver.
- Check waveforms at input and output parts of different stages with the help of CRO.
- Alignment of IF stages.
- Alignment of RF stages.
- Fault finding in Mechanical fixtures viz. Dial Cord, Volume control, loud speaker etc.
- Tracing the circuit of a given transistor/radio receiver

(iii) TRADE : ARCHITECTURE

PAPER-I

ENGINEERING DRAWING - I

THEORY

Time :2hrs

Theory : 30Marks

CCE : 10 Marks

Practical : 50 Marks

Total : 90 Marks

Introduction

Introduction and Scope of Civil Engineering/Architectural Drawing, Instruments and Material used in Engineering Drawing - Drawing Board, Drawing Sheet, Tee Square, Set Square, Parallel Bar, Protector, Scale, Rubber, French Curve, Drawing Pencil, Drawing Instrument Box, Sand Paper, Drawing Pin/ Clips, Duster, Drawing Ink etc, Drawing Machine (Mini Drafter) and its Uses, Precautions in use of Drawing Instruments.

Planning and Layout of Drawings

Need for Planning of Drawing Sheet, Standard Sizes, Margins, Size and Purpose of Title Blocks, Maintenance of Drawing Sheet, Format (With Title, Subject Name, Scale, Orientation etc.)

Free Hand Sketching.

2D Shapes, 3D Shapes, Different Types of Lines, Landscapes/ Building Views.

Lines, Lettering and Dimensions

Point and Lines (Introduction), What is Line, Types of Line, Lines Used in Engineering, Line Weights, Drawing, Lettering (Introduction), Types of Letter - Single Stroke, Double Stroke, Roman Letter, Free Hand Letter, Dimensioning - Types of Dimension, Important Dimensioning Rule, Need, Principles and Different Systems of Dimensioning, Arrangement of Dimensions.

Geometrical Construction:

Procedure of Drawing Plane Geometrical Figures - Triangle, Square, Parallelogram, Rhombus, Hexagon, Pentagon, Kite, Circle and Regular Polygon, Angles (Acute Angle, Right Angle, Obtuse Angle), Bisection and Trisection of Angle.

Projections of Solids

Description of Solids - Cube, Prism, Pyramids, Tetrahedron, Cones and Cylinders.

Section of Solids

Need for Sectioning, Sectional Views when Solids Rest on Base, Procedure of Drawing Sectional Solids - Cube, Prism, Pyramid, Cylinder, Cone.

Symbols and Conventions

Necessity of Symbols & Conventions, Hatching, Conventions for Symbols Related to Building Construction - Bricks Work, R.C.C., Stone, Wood, Earth, Rock, Plaster, Glass, Fiber

Board, Doors, Windows, Fencing, Building, Symbol Related to Water Supply and Sanitation - Water, Urinal, Bath Tub, Indian Type WC, Kitchen Sink, Rain Water Outlet, Water Meter, Dam, River, Canal, Man Hole, Pump, Symbol Related to Road and Railway - Railway Line Single, Railway Line Double, Road Over Railway, Road under Railway, Metalled Road, Non Metalled Road, Electric Line, Bridge, District Boundary, State and International Boundary, Other Important Symbol - Building, Grass, Temple/ Church, City/ Town, Tree, Lake, Well.

Development of Surface of Solids

Importance of Development, List out the Applications Where Developed Surfaces are Used, Differentiate between Parallel Line and Radial Line Development, Selection of Proper Methods of Development, Procedure for Drawing the Development of Simple and Truncated Solids, Development of the Surface of Cube, Prism, Pyramid, Cone, Cylinder.

ENGINEERING DRAWING - I

Time:3hrs

PRACTICAL

Marks :50

- Draw the diagram of different instruments used in engineering drawing.
- Layout of the drawing sheet with proper margin and with title block.
- Draw the drawing sheet of different types/ methods of dimensioning.
- Draw the drawing sheet of different types of engineering lines used in engineering drawing.
- Draw the drawing sheet about the different technique of Letter writing (Free hand and with scale).
- Draw the drawing sheet of different degree of angles.
- Draw the drawing sheet of Bisection and Trisection of different degree angles.
- Draw the drawing sheet of plane geometrical figures like triangle, square, parallelogram, Hexagon, Pentagon, Kite, Circle and regular Polygon.
- Draw the drawing sheet of solids like cube, prism, pyramids, tetrahedron, cones and cylinders.
- Draw the drawing sheet of different civil engineering symbols.
- Draw the drawing sheet about the Development of the surface of cube, prism, pyramid, cone, and cylinder.

PAPER-II

WORKSHOP

PRACTICE - I

THEORY

Time :2hrs

Theory : 30Marks

CCE : 10

Marks Practical : 50

Marks Total :

90Marks

Units of Measurement and Calculation:

Definition of Plane and Solid Figures - Triangle, Square, Quadrant, Circle, Cube, Cylinder, Cone, Pyramid, Prism and their Application, Calculation of Weight of Various Products of Related Cost, Unit of Weight Length, Time and Temperature, M.K.S., E.P.S and S.I Units and their Conversion.

Simple Machines

Introduction, Principle of Working, Advantage, Types - Lever, Pulley, Pulley & Wheel, Screw Jack, Calculation of Mechanical Advantage, Velocity Ratio and Efficiency of Simple

Machines.

Handling of Basic Masonry Tools

Introduction, Uses, List of Important Tools - Trowel, Plumb Bob, Spirit Level, Square, Line and Pin, Brick Hammer, Pick Axe, Chisel, Spade, Wooden Float, Metal Float, Racking Needle, Scratcher, Pointing Tool, Mortar Pan, Curing Pipe, Threads, Precautions for using and Storing Different Tools.

Riveted and Welding Joint

Introduction, Types of Rivet, Types of Riveted Joint - Lap and Butt Joint according to ISI Code, Advantages and Disadvantages of Riveted Joint, Introduction of Welding, Types of Welding - Electric Arc Welding and Gas Welding, Advantage and Disadvantage of Welding.

Walls and Pillars

Partition Wall/ Boundary Wall, Load Bearing Wall - One Brick, One and a Half Brick and two Bricks, Pillars - One Brick and one and a Half Brick.

Structure of Building

Coping, Parapet, Drip Course Line Gola, Terrace, Cornice, Slab, R.C.C. Lintel, R.C.C. Chhajja, Plinth Level, Plinth Course, Plinth Protection, D.P.C., Footing, Trench Plan, Offset, Foundation, Basement, Ground floor, 1st Floor, 2nd Floor.

Layout of Building

Introduction, Tool and Material Required, Procedure, Precautions In Layout of Building, Usage of Scale in Preparation of Layout.

WORKSHOP PRACTICE - I

Time:3hrs

PRACTICAL

Marks :50

- Calculate the area and volume of triangle, circle. Square, cube, cylinder, quadrant and prism.
- Calculate the mechanical advantage, velocity ratio and efficiency of simple machines.
- Identify the different masonry tool at construction site / school workshop.
- Draw the diagram of different masonry tools used in construction works.
- Note down the prices of each masonry tool used in construction works.
- Draw different types of rivets used in riveting.
- Draw the different types of riveted joints - lap joint and butt joint.
- Draw the symbols of different welding joints.
- Draw the diagram of different size of pillars.
- Draw the diagram of section of wall to show the different elements of building - Base of foundation, ground level, Plinth Level, Plinth Protection, D.P.C., Sill Level, Lintel Level, Slab/ Beam, Parapet , Coping, PCC Gola, Plaster, Tile Terracing.
- Measure and note down in tabular form the different items of single room with steel tape.
- Mark the layout of foundation of the one/two room building.
- Model Making of Basic 3Ds Like Cube, Cuboids, Cylinder, Prism and Pyramid.

PAPER-III

BASICS OF BUILDING

CONSTRUCTION

THEORY

Time :2hrs

Theory : 30Marks

CCE :10Marks

Practical : 50 Marks

Total : 90Marks

Building Layout

Introduction of Building Construction, Classification of Building, Briefly Write about the Sequence of Civil Works for Building Construction, Basic Elements of Building - Foundation, Plinth, Plinth Course, Column, Floor, Roof, Parapet, Coping.

Foundation

Introduction, Purpose, Formula to Design the Width and Depth of Foundation.

Brick and Stone Masonry

Introduction, Advantages of Brick Masonry over Stone Masonry, Mortar of different ratios and types of Mortar used in Brick and Stone Masonry, General Principle for Brick and Stone Masonry.

Damp and Damp Prevention

Introduction, Effects of Dampness on Building, Methods to Prevent Dampness in Building by Treatment of - Foundation, Walls, Coping and Parapet, Roof.

Doors and Windows

Introduction, Technical Term - Frame, Sill, Lintel, Vertical Post, Leaf, Styles, Top Rail, Bottom Rail, Rebate, Horns, Hold Fast, Points to be Considered While Making and Fixing Doors and Windows, Types of Door - Battened Door, Paneled Door, Paneled and Glazed Door, Flush Door, Wire Gauged Door, Rolling Steel Door, Collapsible Doors, Types of Windows - Dormer, Corner, Sky Light Window, Clear Storey Window, Metal Windows, Fittings of Doors and Windows.

Floors

Introduction, Component of Floor, Classification - Mud Floor, Brick Floor, Flag Stone Floor, Cement Concrete Floor, Tile Floor, Terrazzo Floor, preparation of Floor Base.

Stairs

Introduction, Technical Term - Tread, Riser, Nose, Step, Flight, Landing, Soffit, Newels, Hand Rail, Staircase, Types of Stairs - Straight Stair, Open Well, Bifurcated, Spiral, Circular, Steel and R.C.C

Stair.

Roofs

Introduction, Sloping Roofs - Lean to Roof, Couple Roof, Couple Closed Roof, FlatRoofs - Thatch Roof, Tiles or Bricks Roofs, Reinforcement Concrete Roof.

Reinforced Cement Concrete (R.C.C.)

Introduction- Cement , Fine aggregate, Coarse Aggregate, Cement Mortar, Advantages and Disadvantages, Technical Term - Span, Effective Span, Hook, Overlap Joint, Cover, Cranked Bar, Straight Bar, Uses of R.C.C.

Water Supply and Sewerage System

Introduction, Sources of Water , Conveyance of Water, types of water supply system – Continuous & Intermittent, Pipe and their Types, Pipe Joints, System of Sewerage, Types of Sewerage systems - Separate, Combined ,Partial, Drains and Sewers, Manhole, Septic Tank, Soak Pit.

Plaster, Pointing, White and Color Washing

Introduction, Advantages, Types of Plaster, Introduction of Pointing, Advantages of Pointing, White Washing, Snowcem Washing, Distemping.

BASICS OF BUILDING CONSTRUCTION

Time:3hrs

PRACTICAL

Marks :50

- Drawing of different types of coping.
- Drawing of doorframe. (Wooden, Aluminum, Steel)
- Drawing of different DPC (damp proof course)
- Drawing of different types of door.
- Drawing of different types of window.
- Drawing of different fittings of doors and windows.
- Drawing of different types of floor (Plan & Section).
- Draw different types of roof.
- Drawing of different types of stairs & members of stair case.
- Draw plan and section of main hole
- Draw plan of septic tank and soak pit.
- Site Visits.