

SYLLABUS FOR SSAE, SAE/WAY REFRESHER COURSE.

Duration-5 Works.

A: PERMANENT WAY

-100 Marks

1. Knowledge on duty of wayman, Gate-keeper, Keyman Mate, Hd. Mate.
2. Duty And responsibility of SSAE/SAE (way) as per way & works manual Book.
3. Composition of track materials: Sleepers, Fish plates, F. Bolt, Compound fish plate, its use and maintenance.
4. Method of picking up slacks, thorough packing over-hauling in SWR & LWR and ordinary track, regaugings correction of foss laegel.
5. Points & Crossing its parts cross-over, maintenance.
6. Schedule of standard dimension M.G/B.G.
7. Temporary speed restriction indicators.
8. Points & Crossings its renewal, wear and tear resurfacing.
9. Cess and bank repairs.
10. Curves grades S, E.
11. Renewal compete and casual (sleepers & Rails).
12. Breaches and washouts.
13. Inspection of P.Way and bridges.
14. Diversion.
15. L.C. Gate & its maintenance and specification .etc
16. Ghat—high level and low leave & intermediate.

B: GENERAL PAPER :

100 Marks.

01. Establishment:

30 Marks.

- (a) Loyal Rule (b) Govt. servant conduct rule (c) Pass rule (d) F. & D Rule,
(e) Pension rule, (f) wages Act, (g) Workmen compensation Act.

02. Locomotive, Carriages & wagon-20 Marks.

- a) Schedule of repair Locomotive, Carriage & Wagon, b) Defects of Locomotives, Carriages and Wagons, Wheels & Springs, c) Fuel economy, d) Vacuum brakes system.

03. Transportation- 20 Marks.

- a) Classification of Station, b) Definitions such as station Limit, Station selection, Adequate distance, Block Section & others, c) Absolute Block system & its essentials, total interruption, d) Procedure for conducting enquiry in case of accident, e) Inspections f) Sectional capacity, g) Procedure for taking block for P.Way special works, g) Train works in abnormal circumstances i) Relief Train and Ballast Train working, j) Stock working.

04. Commercial- 10 Marks.

- a) RMC Booking, b) Responsibility of Rly. As a Carrier of goods, c) Luggage booking d) booking and rebooking.

05. Signaling & Interlocking- 20 Marks.

- a) Kinds of Signals, b) Development of signaling and Interlocking c) Maintenance of signals and interlocking d) Securing of Points, e) Relay Interlocking, Power Interlocking, Mechanical Niter looking.

C: VIVA- VOCE

-100 Marks.

SYLLABUS FOR SSAE, SAE/WORKS REFRESHER COURSE.

Duration- 5 Weeks.

A: WAY & WORKS: 100 Marks (Way-40, Works- 60 Marks)

1. Duties and responsibilities of SSAE & SAE/Works as per P.Way & Works Manual.
2. Knowledge on standard scheduled dimensions.
3. Knowledge on Survey works.
4. Preparation of Estimates, Tender works and Agreement.
5. Preparation of plan (as per scale) for Buildings, Bridges and P.Way.
6. Layout of Bridges, Buildings and Railway Track etc. in respect with bench Mark.
7. Inspection of works, Bridges, Steel structures and Buildings etc.
8. Difference of works on Service Buildings, Staff quarters, colony, Roads, Drains, Stations and Maintenance of Bridges etc.
9. Level crossing Gate – Classification, Grads, Speed Breaker & Their maintenance.
10. Preparation, Maintenance and use of M. Book, Muster sheet, Labour Pay sheet etc.
11. Platforms in station and station yards.
12. Completes Report on works.
13. Breaches during Monsoon, River, Polycione etc & protective Measures taken, protective measures taken in breaches of embankment.
14. Causes of Accidents, Enquiries and removable of obstructions.
15. Water source, supply and Maintenance of Pipe lines.
16. Schedule of standard Rate book, Contractors Agreement and Arbitration suit etc.
17. Stores- procurement, Maintenance accountable, receipt and issue, submission of Stores Returns, Disposal of scrap stores.
18. Annual Indent for Foams and stationary
19. Duties of SSAE & SAES at the time main line block due to accident, Survey for new lions, Bank of P.Way.
20. Knowledge on Rule for safe rerunning of Trains, Running of Motor trolley, Trolley, Lorries etc.
21. Working of ballast train during flood and Emergency works.
22. Rebuilding of Bridge and diversion of track etc.
23. Knowledge on Welding of track & precautionary measure to take emergency :

General Paper:

-100 Marks.

See General Syllabus: A, B, C, D, E, F, G, H, I, J, K.

C: Viva- Voce Test

-100 Marks.

SYLLABUS FOR WORK MISTRIES/WORKS MATE'S REFRESHER COURSE

Duration: 5 Weeks.
100 Marks.

1. Duties and responsibilities of work Mate/Work Matrices.
2. Supervision of the works of Contractors as per Agreement under order of SSAE/SAE (Works).
3. Knowledge on General Survey works.
4. Necessary arrangement for preparation of General Estimate for works.
5. Supervision of Maintenance and Repair works under SSAE/Works and Tools, Plant and Materials.
6. Knowledge on General Drawings as per scale such as Station yards, Buildings and Boundary works as per section book.
7. Programmed on tree plantation, cause, Management and Maintenance.
8. Loading and unloading of Materials on and from Material trolleys.
9. Difference between Material trolley and lorries and their Working Rules.
10. L.C. Gate: classification, Tools and plants and their maintenance.
11. Drinking water: source, supply in service & Residential Buildings.
12. Railway Track and Bridge Erection, Renewal, Maintenance, Speed indicator, Boards making and installation.
13. Actions taken during Monsoon: Survey Before monsoon and steps for protection with flood reserve Materials etc.
14. Maintenance of approach Roads to the Station and Colonies.
15. General knowledge on welding Track exist in B. Railway for precautionary measure to be taken etc.

SYLLABUS FOR MATE'S REFRESHER COURSE.

Duration: 4 Weeks.
100 Marks.

1. Knowledge on duty of Wayman, Keyman, Gate keeper & Mate.
2. Composition of track materials, Sleepers, fish plates, fish bolts, poundage of rail with section, compound fish plate, its use and maintenance. Name of tools required for a gang and checking of spirit level, level Board.
3. Method of:
 - a) Picking up slacks.
 - b) Thorough packing,
 - c) Overhauling along with period when to be done.
 - d) packing with tamping machine,
4. Spacing of sleepers.
5. Efficient drainage of Track when to be done.
6. Method of renewal of:
 - a) Spl. Sleepers under points & Xing's.
 - b) Bridge Timber.
 - c) Ordinary sleepers.
7. Maintenance of points and Xing along with its renewal.
8. Maintenance of Curve, regaining, correction of super elevation boxing of track.
9. Maintenance of S--, SWR Track in comparison with ordinary track.
10. Some important dimensions connected to P.Way
11. Erection of temporary speed restriction Board.
12. Method of loading and unloading of P.Way materials.
13. Theoretical & Practical knowledge for maintenance of welding Track (LWR & SWR) as per P. Way & Works Manuals.

Field: 10 Days

14. Establishment
15. Traffic.
16. Signal.

BANGLADESH RAILPATH PRASHIKSHAN ACADEMY
HALISHAHAR, CHITTAGONG.

PROPOSED SYLLABUS
OF
CIVIL ENGINEERING DEPARTMENT.

TWO YEARS TRAINING PROGRAMME OF PROB. AENs

- | | |
|---|-------------|
| 1. Foundation Training at RTA / CTG | : 18 Weeks. |
| 2. Training at BPATC, Savar, Dhaka | : 17 " |
| 3. Survey and Settlement Training | : 12 " |
| 4. Field Training : | |
| a) With AENs for maintenance of Way & Works | : 16 " |
| b) With XEN, CTB | : 2 " |
| c) Maintenance of Bridges and Ghats | : 6 " |
| d) Survey and construction | : 6 " |
| e) In control Office | : 2 " |
| f) In Loco Shed | : 2 " |
| g) In Work Shop, Saidpur | : 2 " |
| h) In Bridge Work Shop, Kadamtali | : 4 " |
| i) In Signal Workshop, Chittagong | : 1 " |
| j) With Traffic Inspector/T | : 1 " |
| 5. <u>Training In HQ's Office</u> | |
| a) At CE's Office | : 4 " |
| b) At CPLO's Office | : 1 " |
| c) At COPS's Office | : 1 " |
| d) At CCS/PH's Office | : 1 " |
| e) FA & CAO's Office | : 1 " |
| f) In GM's Office | : 6 " |
| 6. Final Training at RTA Chittagong | : 6 " |

Total : 104 Weeks.

109 weeks

TRAINING SYLLABUS OF PROB. AEN's FOUNDATION COURSE.

Duration : 18 Weeks.

A: CIVIL ENGINEERING SUBJECT

Permanent Way

100 Marks.

1. Introduction

- a) Permanent Way
- b) Permanent way structure.
- c) Different gauges used in World Railway & Comparison.

2. Rails

- a) Functions
- b) Types of Rails
- c) Rail steel & composition
- d) Necessity of canted Rail seat.

3. Sleepers

- a) Functions of sleepers
- b) Conventional sleepers (Wooden & steel)
- c) Inspection & treatment of sleepers before & after use.

4. Fastenings

- a) Types of conventional Fastenings.
- b) Functions of different fastenings.
- c) Use of fastenings at various location of track.

5. Ballast

- a) Types
- b) Functions & Qualities required.
- c) Sources of supply
- d) Stacking, loading, unloading & measurement.

6. Formation

- a) X-Sections in different soil condition and also at various location.
- b) Bad formation & their treatment.
- c) Nature of failures of formation & their remedies.

7. Points & Crossings

- a) Functions
- b) Types
- c) Different parts of points & crossings.
- d) Laying, Maintenance & Inspection.

8. Curves

- a) Necessity
- b) Permissible degree, super elevation, transition curve & Gauges on curves.
- c) Laying, realignment, Maintenance.

9. Trolleys / Lorries, their movement & control.

10. Maintenance & Inspection.

- a) Inspection of fish plated track
- b) Maintenance of fish plate track Daily & Periodical
- c) Cause & effects of rail fractures, creep, buckling & remedies.
- d) Defects of joints, causes, effects & remedies.
- e) Gang Strength
- f) Deep screening
- g) Action during monsoon, before & after monsoon, monsoon pay rolling.
- h) Patrolling
- i) P. Way tol.

11. Track Renewals.

- a) Necessity
- b) Policy in B. Railway for track renewal.
- c) Track laying
- d) Relaying.

12. Modern Track.

- a) SWR, LWR necessity, merits & demerits, also problem in Bangladesh.
- b) Welding Techniques.
- c) Laying & maintenance of SWR & LWR track.
- d) MSP, DTM
- e) Necessity Concrete sleeper, merits/demerits over conventional sleepers, types of concrete sleeper used in World Railways & in Bangladesh also.
- f) Elastic fastenings, necessity merits/demerits & types (also available in Bangladesh Railway).

13. Speed in Railway Track :

- a) Sectional Speed
- b) Booked Speed
- c) Causes for imposition of speed restriction on track & caution indications used in Railway.
- d) Block

14. Breaches & Diversions.

15. Derailments for track defects.

16. Level crossing.

17. GIBR's Sanction.

18. Schedule of Dimension.

19. Maintenance of Stores.

20. Engagement & Control over temporary labour.

21. Movement & control over Ballast Train.

22. Responsibilities of DEN, AFN, SSAE, SAE, Kd. Mate, Mate, Keyman, Gateman.

WORKS AND BRIDGES

100 Marks.

Works : 60 Marks

1. Various fields of Railway works, Planning of works and works programme.
2. Estimates - types and preparation.
3. Surveying.
4. Preparation of drawings, plan
5. Introduction to schedule of rates of analysis of different items.
6. Rules for floating of Tenders, preparation of tender documents, execution of contract agreement.
7. Execution of works.
8. Measurement books and preparation of Contractor's bill.
9. Earth work in track formation.
10. Inspection & maintenance of building/structures.
11. Construction & maintenance of service & residential buildings, Roads, water supply & sanitary Engineering.
12. Responsibilities of JSAE, SAE.

BRIDGES 40 Marks.

1. Types of Railway Bridges.
2. Foundation of Bridges - Shallow or deep.
3. Super-Structures (a) Steel fabrication & launching.
4. Bridge Inspection (field)
5. Repairs, maintenance & rehabilitation of bridges.
6. Painting of Bridges.
7. Action before & during monsoon, after monsoon.
8. Temporary arrangement.
9. Responsibilities of Bridge Branch.
10. Tools & equipments for bridges.

B: TRANSPORTATION: Theoretical & Practical

150 Marks.

1. G & S Rules Book.

- GR & SRs - 1, 2, 3-42, 45, 49, 50, 52, 54-58, 60-68, 70-74, 76, 81-84, 85-93, 99, 101-104, 105-113, 115, 116, 121-127, 129-130, 134, 135, 140, 142-144, 148-153, 154, 155, 157, 161-164, 167-184, 195-217, 222, 227-233, 234-257, 298-300, 301-304, 306, 309.
- Appendices - I, II, III A, III B, III C, IV, VI, VII.

2. Practical : Operation of Block Instruments, granting permission to approach and authority to proceed, abnormal working.

C: GENERAL PAPER

See General Syllabus A, B, D, E, F, G, H, I, J, K & L.

100 Marks.

D: PHYSICAL TRAINING

100 Marks.

E: FIRST AID, CIVIL DEFENCE -

100 Marks.

F: VIVA - VOCE

100 Marks.

TRAINING SYLLABUS OF PROB. AENs FINAL COURSE.

Duration : 6 Weeks.

A: PERMANENT WAY

100 Marks.

1. Design of Railway Track:
 - a) Standard Loading of Railway.
 - b) Stress on Rails, Sleeper, Ballast & formation.
 - c) Design of Line capacity.
 - d) Yard design.
2. Concrete Sleeper :
 - a) Design & manufacturing of Concrete sleeper.
 - b) Laying & Maintenance of concrete sleeper.
 - c) Fastenings for concrete sleeper.
3. Theory & Design of SWT. & LWR Track including laying and maintenance.
4. Curves :
 - a) Theory & Design
 - b) Theory & practical consideration for realignment of curves.
5. Points & Crossings :
 - a) Design
 - b) Laying & maintenance.
6. Criteria for raising speed on track.
7. Track circuited area.
8. New Railway :
 - a) Survey
 - b) Preparation of estimates
 - c) Construction.
 - d) Opening.
9. Track renewals & Deep screening :
 - a) Programming
 - b) Preparation of estimates
 - c) Calculation of manpower.
10. Review of track inspection & maintenance.
11. Derailments :
 - a) Theoretical background.
 - b) Investigation of derailments.
 - c) Track & Rolling stock parameters.
12. Responsibilities of AEN in case of an accident.

WORKS AND BRIDGES

100 Marks.

Works - 60 Marks.

1. New Project :
 - a) Preparation of a Project.
 - b) Preparation of estimates.
2. Tenders :
 - a) Floating of tenders.
 - b) Preparation of documents.
 - c) Preparation of tender
 - d) Execution of contract agreement.
3. Contract & Arbitration
4. Delegation of financial power at different levels.
5. Execution of Works.
6. System in Bangladesh: 1. Railway for repairs, maintenance of all service & residential buildings, roads, water supply & sanitary system.
7. Water proofing of roofs.
8. Excess expenditure.
 - a) Procedure to incur excess expenditure.
 - b) Authority to sanction excess expenditure.
9. International procurement.
10. Flood reserve stock.

Bridges : 40 Marks.

1. Bridge Code, Bridge Rules, Steel Bridge Code.
2. Temporary arrangement.
3. River Training & protection works.
4. Inspection, repairs, maintenance & rehabilitation of bridges.
5. Design of piers, abutments & foundations.
6. Procedure for opening of a new bridge.

Planning & Management - 100 Marks.

- A.
 - (1) Project planning concept, objectives, elements, cycles with reference to Bangladesh.
 - (2) Stages of Project Preparation.
 - (3) Project Financing and Fund release.
 - (4) Project Proforma.
 - (5) Project Implementation and Evaluation.
 - (6) Cost Benefit Analysis.
- B.
 - (1) Management : Theory and Practice.
 - (2) Group and Inter-personal skills development
 - (3) Personnel Management.
 - (4) Industrial Relation.
 - (5) Functional areas of Management.
 - (6) Financial Management.

Viva - Voce Test :

100 Marks.

DETAILED SYLLABUS OF PROB. SAE/WAY'S FOUNDATION COURSE.

Duration 18 Weeks.

A: CIVIL ENGINEERING

200 Marks.

Permanent Way

PART - I

1. Knowledge on duty of - Gangman, Keyman, Mate, Gate-keeper, Hd. Mate, SAE/Way, AEN, DEN.
2. Knowledge of rules on -
 - a) Formation of Track
 - b) Engg. Manual of B. Railway concerning P. Way.
 - c) Schedule of standard dimensions concerning track.
 - d) Accountal of Stores, Statements and returns - Monthly, Half-yearly and yearly, preparation of Muster sheet & L.P Sheet.
 - e) Trolly-light and materials.
3.
 - a) Composition of Track materials - Sleepers, fish plates, fish bolts, poundage of rails and their section, compound fish plates, their manufacture, use, maintenance.
 - b) Ballast, its size, use, source of supply and screening.
 - c) Formation, soil, dimensions
 - d) Annual overhauling of Track.
 - e) Method of picking slack, thorough packing.
 - f) Spacing of Sleepers.
 - g) Drainage system in Track.
4. Points and crossing : Nomenclature of various components of points and crossings and its layouts namely - turn out, cross-over, Diamond crossing, Scissors cross-over etc.
5. Simple calculation on points and crossings.
6. Survey work (leveling).
7. Field work : Opening out of sleepers, packing under sleepers, Gauging, Correction of cross levels and boxing of track.
8. Name of tools and plants required for a Gang, its distribution and use.
9. general Knowledge on welding of Track LWR & SWR as per Manual.

PART - II

1. Knowledge of rules on -
 - a) Engineering Manual of B. Railway concerning P. Way.
 - b) Schedule of standard dimensions concerning track.
 - c) Accidents, procedure for conducting inquiry into Accident.
 - d) Upto - date circulars issued by CE concerning P. Way.
 - e) Temporary speed restriction indicators.
2. Knowledge of various track materials in use with their dimensions, tools, and plants in use and when declared condemned after use.
3. Wearing out of track materials, conditions under which wooden sleepers are declared un-serviceable.
4. Lifting and repairing of track.
5. Renewals of Rails, points and crossings.

DETAILED SYLLABUS OF PROB. SAE/WAY'S FOUNDATION COURSE.

Duration 18 Weeks.

A: CIVIL ENGINEERING

200 Marks.

Permanent Way

PART - I

1. Knowledge on duty of - Gangman, Keyman, Mate, Gate-keeper, Hd. Mate, SAE/Way, AEN, DEN.
2. Knowledge of rules on -
 - a) Formation of Track
 - b) Engg. Manual of B. Railway concerning P. Way.
 - c) Schedule of standard dimensions concerning track.
 - d) Accountal of Stores, Statements and returns - Monthly, Half-yearly and yearly, preparation of Muster sheet & L.P Sheet.
 - e) Trolly-light and materials.
3.
 - a) Composition of Track materials - Sleepers, fish plates, fish bolts, poundage of rails and their section, compound fish plates, their manufacture, use, maintenance.
 - b) Ballast, its size, use, source of supply and screening.
 - c) Formation, soil, dimensions
 - d) Annual overhauling of Track.
 - e) Method of picking slack, thorough packing.
 - f) Spacing of Sleepers.
 - g) Drainage system in Track.
4. Points and crossing : Nomenclature of various components of points and crossings and its layouts namely - turn out, cross-over, Diamond crossing, Scissors cross-over etc.
5. Simple calculation on points and crossings.
6. Survey work (leveling).
7. Field work : Opening out of sleepers, packing under sleepers, Gauging, Correction of cross levels and boxing of track.
8. Name of tools and plants required for a Gang, its distribution and use.
9. general Knowledge on welding of Track LWR & SWR as per Manual.

PART - II

1. Knowledge of rules on -
 - a) Engineering Manual of B. Railway concerning P. Way.
 - b) Schedule of standard dimensions concerning track.
 - c) Accidents, procedure for conducting inquiry into Accident.
 - d) Upto - date circulars issued by CE concerning P. Way.
 - e) Temporary speed restriction indicators.
2. Knowledge of various track materials in use with their dimensions, tools, and plants in use and when declared condemned after use.
3. Wearing out of track materials, conditions under which wooden sleepers are declared un-serviceable.
4. Lifting and repairing of track.
5. Renewals of Rails, points and crossings.

6. Creep, its causes, effects and remedy, pulling back of rails, oiling of fish bolts and greasing of fish plates, buckling.
7. Rails its wear and tear, life dimensions, spacing of sleepers and speed of trains.
8. Renewals complete, thorough and causal.
9. Relaying and re-sleepering.
10. Bridges, Maintenance of track, timbering, temporary arrangements for repairs to bridges- sleeper crib rail cluster, diversion etc.
11. Welding of Track & its maintenance specially for LWR as per directives in Track Maintenance (DTM) as in P. Way & Works Manual.
12. Level crossings - Standard, specifications, Gate, maintenance, lifting, equipment of Gate, Gate Rules in force.
13. Curve - Classes, Transition and non-transition, super elevation and its measurement, Degree of curvature, realignment, Negative and positive super elevation.
14. Gradients - Compensation of gradient on curves, Ruling gradient etc.
15. Field work -
 - a) Method of checking spirit level board, S. F. Board, Rail gauge, gang chart etc.
 - b) Laying out of curves on ground by string method.
 - c) Practical layout of yards on ground.
 - d) Method of loading and unloading heavy materials, like rails, points and crossings etc. from and on material trolly and Ballast Trains.
 - e) Theoretical training on Theodolite and its practice.
 - f) P. Way Drawing - simple yard lay out with problems.
 - g) Maintenance of LWR Track in hot and cold weather as per manual.

PART - III

1. Knowledge of rules on - (a) Engineering Manual of B. Railway concerning P. Way including breaches and washout ghat and ballast track etc. (b) Schedule of standard dimensions concerning P. Way.
2. Treatment of bad soil.
3. Flood : Effect on banks and bridges, vigilance of chowkidars, flood reserve of materials, preventive measure etc.
4. Ghat - kinds of ghats, conditions for working ghat, lay out of yards, ramp line, behavior of channel, shifting of ghat at high intermediate and low level etc.
5. Method of checking gang works, methods and utilities of advance allotment of work to gangs, Maintenance and utility of gang charts.
6. Points and crossings - calculations (simple and complex).
7. Field Work :
 - (a) Practical work on track (b) Laying out of curves by string method (c) P. Way drawings (Yards remodeling with difficult problems).
8. Organisation - Labour supply of tools for different works and control of labour.
9. Construction of new lines, working of Ballast Trains, Carriage of materials and linking of track on straight, curves, bridges and layout of new yards.
10. General instructions on maintenance of track.
11. Theodolite (Theory and practice)
12. Safety first principles.

B: TRANSPORTATION (Theoretical)

100 Marks.

General and Subsidiary Rules Book.

1. Chapter- I : Definitions, Classification of Station.
2. Chapter - II, III, IV, V, VII, VIII, X.
3. Appendices - III A, III B, III C, VII of C & S Rule Book.
4. Joint signal failure Inspection, Joint Signal Inspection.
5. Inquiry into Railway Accidents.

C: GENERAL PAPER -

100 Marks.

1. See General Syllabus: A, B, D, E, F, G, H, I, J, K, L.

D: PHYSICAL TRAINING

100 Marks.

E: FIRST AID, CIVIL DEFENCE -

100 Marks.

F: VIVA - VOCE

100 Marks.

SYLLABUS OF PROB. SAE/WAY'S & WORKS FINAL COURSE.

Duration : 12 Weeks.

A: PERMANENT WAY : (Theory 100, Practical P.Way & Works 100)

1. Knowledge on duty of Wayman, Gateman, Mate, Hd. Mate, SAE/Way & P.Way tools.
2. Duty and responsibility of SAE/Way.
3. Composition of Track materials - Sleepers, Fish plates, Fish bolts, Rail and its poundage, compound fish plate & its use and maintenance, Elastic spikes, screw spikes etc.
4. Track maintenance - How and what portion of sleepers to be packed. Packing materials, picking up slacks, thorough packing, overhauling in case of ordinary track, SWR & LWR Track, creep and its remedy.
5. Curves, grades and compensation, super elevation setting by string linking method.
6. Construction of new lines.
7. Renewals - complete and casual etc.
8. Relaying.
9. Inspection of P. Way and bridges.
10. Diversion of Track and erection of speed restriction Indication including use of Audible & Hand Signal Flag/ Lamp.
11. Breaches and washouts.
12. Points & Xings- its nomenclature, maintenance, wear and tear, renewals resurfacing etc.
13. Level crossing gates : classification, maintenance, wear and tear, renewals resurfacing etc.
14. Ghat - its maintenance, high level and low level etc.
15. Maintenance of Muster sheet, Permanent and temporary staff, preparation of bills, checking of Muster sheet and TLRs Bill etc.
16. Engagement of substitutes and procedure to be adopted thereby.
17. Method of checking realising of work done by a Gang.
18. Procedure of Inspection of Track by Trolley and Engine.
19. Tools and plants when declared Unserviceable and procedure for getting new one.
20. Checking of spirit level and level Board.
21. Accountal of P. Way materials, Daily issue and renewals, kinds of monthly store returns, and its maintenance and submission to higher offices.
22. Annual Indent for forms and stationary.
23. Disposal for u/s materials.
24. Over all safety rules for Track, Train etc.
25. Welding of Track as per P. Way and Works Manual.
 - (a) Welding of Track : LWR & SWR with theory as adopted in B. Railway
 - (b) D.T.M (Direct Track maintenance in case of LWR).
 - (c) Precautionary measures to be taken in case of LWR in hot and cold season.
 - (d) Maintenance of LWR and action to be taken in fractured rails and buckling of Track etc.

WORKS:

1. Various fields of Railway works, Planning and programme works.
2. Knowledge on Surveying, scale of drawings and Plans etc.
3. Types of the Railway Bridge, its maintenance and Inspection.
4. Preparation of Estimates as regards requirement of earth work for embankment of P. Way.
5. Actions to be taken in case of Flood and breaches, scour etc., use of Flood reserve materials.

B: MODEL ROOM PRACTICAL

50 Marks.

C: Viva-Voce

100 Marks.