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NOTIFICATION

No.A.34015/1/2000-P&E/60, the 13th January, 2004. In exercise of the powers vested under Rule 19(3)(a) of the MES Rules, 2001 as adopted by the Government of Mizoram, Power & Electricity Department, the Governor of Mizoram is pleased to order with immediate effect and until further orders that all officers of the rank of JE/AE(C) are hereby required to pass Departmental Examinations in the accordance with the Syllabus annexed hereto at Appendix 'A' failing which any such officer shall not be eligible for promotion to next higher rank at any stage in the time scale of pay applicable to him.

Haukhum Hauzel,
Commissioner & Secretary to the Govt. of Mizoram,
Power & Electricity Department.

SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ENGINEERING FOR J.E's/(CIVIL)

ENGINEERING PAPER

1. Description, Care and use of Survey Instruments, preparation of Plan, Elevation, Sectional drawings and reading & writing of design and Architectural drawings.
2. Construction materials commonly used, their characteristics quality and properties, Bricks, Stone masonry, coarse and fine Aggregate, Re-inforcement Steel, Cement, Timber etc, and common test for quality test control.
3. Analysis of Rates, Estimates quantities of materials & Transport, preparation of Estimates/Method of measurement.

4. Basic theory and properties of R.C.C. Curtailment of steel re-inforcement, Bond length, Strees - Compressive, tensile, shear, Neutral axis, Strees Strain diagram etc.
5. Water Cement Ratio Slump test, Gradation of aggregate, curing and compaction of concrete, formwork.
6. Hill road Survey- different stages of survey. Estimating and measurement of road works. Road geometry, Camber, Superelevation, Gradient, Side Slope, Curves, Classification of Roads.
7. Stone masonry works, Construction Procedures for Retaining Wall, size of stones etc.
8. Identification of site for small hydel project, Selection of site for stream gauging, Measurement of water discharge using (1) V-notch (2) rectangular notch (3) Current meter and (4) Floating method.
9. Power potential calculation and general knowledge Gross head, net head, design head, rated head, head losses.
10. Topographical survey of run-of-the-river schemes :- scales, contour intervals and particulars of survey require for river, general layout, diversion weir, water conductor/power channel alignment, forebay, penstock, power house & switchyard.
11. General Knowledge on live storage, dead storage, Firm Power, secondary power, load factor, installed capacity, peak load, average load, dependability.
12. Standard Specifications for various items of work.

SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ACCOUNTS FOR J.Es

PAPER - I (WITHOUT BOOKS)

1. Maintenance of Permanent Imprest and Temporary Advance.
2. Maintenance of Material Site Accounts.
3. Knowledge of maintaining Muster Roll.
4. Knowledge of maintaining of T and P accounts.
5. Knowledge of maintaining of Vehicle accounts.
6. Transfer of materials with adjustment by drawing T.E.O
7. Survey of unserviceable materials/plants.

8. Measurement Book G.R.S etc.
 9. F.R and S.R (Leave Rule, dismissal/removal from services suspension, retirement, joining time and disciplinary proceedings)
 10. Taridd
 11. Leave Rules/T.A. Rules.
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**PAPER -II
(WITH BOOK)**

1. Central Public Works Accounts Code.
2. Central Public Works Department Code.
3. Central Public Works Department Manual, Volume-II.
4. Central Treasury Rules -
(Rules 147 to 194, 388 to 298 and 540 to 552)
5. C.C.S. (Conduct) Rules 1964
6. C.C.S. (C.C.S) Rules
7. Temporary Service Rules, 1964

**SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ENGINEERING
PAPER FOR SDO/AE (CIVIL)**

1. Geo-technical Engineering :

Type of soil, Classification of soil, Darcey's, law, permeability, Terzaghi's theory of one dimensional consolidation, Compaction of soil, field compaction. Earth pressure at rest, active and passive pressure, Rankine's theory, Immediate consolidation and secondary settlement, stability of slope.

2. Structural Engineering :

Design of reinforced concrete structure-working stress and limit stress method based on IS code. Design of RCC cantilever and counterfort retaining wall. Design of steel structures, factor of safety and load factor, tension and compression member, beams and plate. Design of masonry retaining wall.

3. Quality Control :

Quality of materials, test, test checking, knowledge of IRC specifications.

4. Estimating, analysis of rates and specification.

5. Statutory clearances mandatory for Hydel Projects, Environment Impact Assessment (EIA) and Environment Impact Management (EIM) reports.

PAPER - II
ENGINEERING PAPER

1. Hydrology :

Data collection, water availability assessment and stream gauging, Precipitation analysis, Design flood estimation.

2. Field Investigation :

- (a) Silt collection.
- (b) Topographical survey for run-of-the river and storage schemes.
- (c) Geological survey
- (d) Construction materials survey

3. Assessment of Power Potential and optimization or installed capacity :

- (a) Power potential
- (b) Determination of net head.
- (c) Assessment of power potential for run of the river and storage schemes.
- (d) Assessment of power potential with scanty data
- (e) Optimization studies for determination of installed capacity.
- (f) Number of units to be installed.
- (g) Energy generation and sale.

4. Design of Civil works :

Design of (for small hydel schemes)-

- (a) Diversion structures
 - (1) Trench weir and raised type weir.
 - (2) Gravity dam
 - (3) Earthen dam
 - (4) Rockfill dam
- (b) Power channel/water conductor system
- (c) Desilting Tank

- (d) Forebay structure
 - (e) Penstock
 - (f) Power house
 - (g) Tail race
5. Electro-Mechanical Equipments :
- (a) General Knowledge on type of turbines, ranges, selection of type of turbine.
 - (b) General Knowledge on hydro-mechanical equipments for run-of-the river Small Hydel Projects.
6. Preparation of Preliminary Feasibility Report (PER), Detailed Project Report (DPR) and Pre-construction Investigation Report (PIR), construction aspect of hydel project and account classification.

**SYLLABUS FOR DEPARTMENTAL EXAMINATION IN ACCOUNTS FOR
A.E/S.D.O AND ABOVE**

**PAPER - I
(WITH BOOKS)**

1. C.P.W.D. Accounts Code.
2. C.P.W.D. Manual Volume-I & II
3. C.C.S. Conduct Rules, 1964
4. C.C.A. Rules, 1965
5. Indian Contract Act, Sales of goods 1894
6. Central Treasury Rules
7. Temporary Services Rules, 1964
8. F.R.& S.R (Pay Rule, Maintenance of Service Books, Leave Rules, Dismissal, Removal, suspension, Retirement, joining Time etc).

**PAPER-II
(WITHOUT BOOKS)**

1. Writing and Maintenance of Cash Book
2. Writing and Maintenance of Contractor Ledger.
3. Materials at site Accounts, Stock Returns, Register of works, Preparation of Contractor's Bill

4. Electricity Revenue Collection Accounts.
5. Writing of Materials Indent.
6. Maintenance of Muster Roll
7. Imprest Accounts
8. Schedule of Tariff
9. Various forms generally used in Power & Electricity Department
10. Generation Data, Sales and Revenue Data
11. Preparation of Tender/Quotation and Comparative Statement
12. Dismantle Materials Accounts of Government Statement.
13. Measurement Book.