

BHARAT SANCHAR NIGAM LIMITED
(A Government of India Enterprise)
(**BW Unit: Corporate Office**)
10th Floor, Chandra Lok Building, Janpath, New Delhi-110001.

No. LDCE/AD(BW-II)/05/Pt

Dated : 11.09.2007.

To

1. All CGM BSNL.
2. All PCE(C)/CE(C) BSNL

Sub: Scheme and syllabus of Limited Departmental Competitive Examination for promotion to the grade of SDE(C) from the grade of JTO(C).

Kindly find enclosed herewith the scheme and syllabus of Limited Departmental Competitive Examination for promotion to the grade of SDE(C) from the grade of JTO(C) working in BSNL.

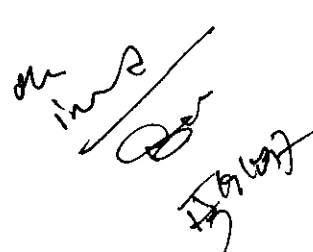
As per the SDE(C), RRs 2002 Twenty Five (25 %) of posts in SDE(C) grade was to be filled up by Limited Departmental Competitive Examination from amongst JTO(C) who have rendered not less than three years regular service in the grade on 1st July of the year of Examination. The quota of 25 % in SDE(C) RRs 2002 has since been enhanced vide letter No.20-1/2001-Pers.II dated 30.07.2007 to 33 % (Copy enclosed).

Scheme/syllabus of examination may kindly be given wide circulation among the eligible candidates.

Encl.: As above.


(Chandra Bhushan)
Jt.DDG(BW-I)

Copy to : 1. Jt.DDG(EW) for information please.



Scheme & Syllabus for Departmental Competitive Exam. for promotion to the cadre of SDE (Civil) from JTO (Civil)

Scheme:-

- A. Paper I (Objective type) - 100 marks (2 hours)
- B Paper II (Descriptive type) - 100 marks (3 hours)
1. Negative marking shall be done for incorrect answers in paper I. For every four incorrect answers, one full mark will be deducted.
 2. No marks for evaluation of record of service (i.e. ACRs) shall be done.
 3. Minimum passing marks in each paper - 50% for general candidates
- 45% for SC/ST candidates
 4. The questions papers will be so designed as to assess the ability of the candidates to apply their technical knowledge to the solution of the problems.
 5. Candidates are permitted to bring and use battery operated pocket calculators for descriptive type paper II.
 6. Candidates are not permitted to take any book to the examination hall.

SYLLABUS FOR PAPER I & II (Civil Engineering)

Part-A Strength of Materials and Theory of Structures

- i) Stress-strain relations- Hooke's Law.
- ii) Determination of forces in members of trusses, pin-joint frames.
- iii) Bending Moments and shear Forces. Theory of simple bending.
- iv) Continuous beams and simple portals- Determination of bending moments and shear forces- methods of analysis

(10 marks)

Part-B Design Principles

- i) Determination of dead, live, wind loads and earthquake forces, factor of safety and load factor. Use of relevant BIS Codes.

(10 marks)

Part-C Steel Design

- i) Design of simple beams and Beams and plate Girders according to Indian Standards.

64/c

- ii) Design of single and built up columns, column base connections.
- iii) Design of Steel Roof Trusses.

(10 marks)

Part-D Reinforced Concrete

- i) Basic principles of reinforced concrete, shear, bond and diagonal tension, location of reinforcement.
- ii) Design of single and doubly reinforced beams, one way and two way slabs.
- iii) Theory and design of reinforced concrete columns with uni-directional bending only.
- iv) Design of cantilever and simple counterfort retaining walls.
- v) Liquid retaining structures- special requirements.

(20 marks)

Part-E Construction Practice

- i) General Details of Building construction including foundations, flooring, masonry and different type of roofs, safety during constructions.
- ii) General properties, standard requirement and tests for common building materials such as bricks, stones, sand, aggregate, cement, lime, timber and steel. Tests for fresh and hardened concrete, non destructive tests. Workability of concrete, water-cement ratio, ingredients including admixtures, mix design methods.
- iii) Central PWD specifications for building works, sanitary and water supply works and road works including modes of measurements.
- iv) Bar chart, CPM & PERT techniques.

(20 marks)

Part-F Surveying

- i) Use and adjustment of Surveying Instruments:- Chain, plane table and accessories, magnetic compass, level and theodolite.
- ii) Compass and Theodolite, Traverses: Errors and Precision in traversing. Traverse computations and adjustments.
- iii) Plane Table Surveying: Plotting of details, three point problem and two point problem.

65/c

- iv) Levelling:- Methods of levelling and reduced level calculations.
 - v) Curves and alignment: Setting out of simple, reverse and transition curves using different methods, vertical curves.
- (5 marks)**

Part-G Highway Engineering

- i) Road alignments in hills and plains, minimum standards for national highways.
 - ii) Principles of designs of urban roads their cross-section requirements and intersections, road drainage and maintenance. House paths, approach roads and service lanes.
- (5 marks)**

Part-H Public Health Engineering

- i) Water-supply: Quality and quantity of water required for public water supplies. Water purification processes.
 - ii) Water distribution system - valves and fittings etc.
 - iii) Sanitation: Orientation, ventilation and damp proofing buildings. Sanitary appliances, construction and testing of house drains.
 - iv) Sewage disposal- Sewerage system- Construction and maintenance. types of sewage treatment-Oxidation ponds-simple sedimentation, recirculation and high rate filtration-contact beds, percolating filters, septic tanks, Imhoff tanks.
- (10 marks)**

Part-I Soil Mechanics and Foundation Engineering.

- i) Index properties of Soils, classification, Soil explorations.
 - ii) Foundation Engineering: Principles of Selection of type of foundation for a structure, shallow and deep foundations, Methods of determining bearing capacity.
 - iii) Compaction : Laboratory and Field methods- Optimum moisture content, settlement- field & laboratory tests.
 - iv) Foundation on expansive soils, type of piles, their design and layout.
- (10 marks)**