GOVERNMENT OF SIKKIM
ROADS & BRIDGES DEPARTMENT
GANGTOK.

No. .......... / R & B. Dated 18.05.2015

NOTIFICATION

Rules for open competitive examination to be conducted by the Sikkim Public Service Commission in 2015 for selection of candidates for appointment to the post of Junior Engineer (Civil) are published for general information.

1. The number of vacancies to be filled up after the Examination will be specified in the Notice to be issued by the Sikkim Public Service Commission.

2. The Examination will be conducted by the Sikkim Public Service Commission according to syllabus and procedure as indicated in the Appendix I to these Rules.

3. The date and place of Examination will be fixed by the Sikkim Public Service Commission.

4. Candidate must write the answers in his/her own hand. Under no circumstance will he/she be allowed the help of a scribe to write the answers.

5. A candidate must pay fees as may be prescribed by the Commission.

6. The decision of the Commission as to the eligibility of a candidate for admission to the examination shall be final.

7. No candidate will be admitted to the examination unless he/she holds a certificate of admission issued by the Commission.

8. A candidate who is or has been declared by the commission to be guilty or any attempt on his/her part to obtain support for his/her candidature by any means shall render him/her liable to be disqualified for admission to the competitive examination.

9. The Commission shall have the discretion to fix the qualifying marks in any or all subjects in the Written Examination.

10. Candidate must obtain the qualifying marks decided by Sikkim Public Commission in the written examination. A candidate who obtains such minimum qualifying marks in the Written Examination as may be fixed by the Commission shall be called for personality test. Personality test will be of 50 marks or as assigned by the Commission at their discretion.

11. The form and manner of announcement of result of the examination shall be decided by the Commission. The Commission will not enter into any correspondence with any candidate regarding result.

12. After the examination and interview, the names of the successful candidates will be arranged by the Commission in order of merit based on marks awarded to each candidate. Candidates shall be recommended for appointment to the available vacancies in the order in which their names appears in the merit list.
13. A candidate who is or has been declared by the Commission to be guilty of impersonation or of submitting false and fabricated documents which has been tempered with or of making statements which are incorrect or false or of suppressing material information or of attempting to use unfair means in the examination hall or otherwise or resorting to any or other irregular or improper means for obtaining admission to the examination hall may in addition to rendering himself liable to criminal prosecution by (a) By the Commission permanently of for specified period for admission to any examination or appearance at any of the interviews held by the Commission for selection of candidates.
(b) By the State Government for any employment under them.
14. Candidate already in centre or State Government Service or in Central or State Government owned Undertaking or other Organizations, whether in permanent or temporary capacity or as work charged employee shall be required to submit their application along with No Objection Certificate from the employee.
15. Success in the examination confers no right to appointment unless Government is satisfied after such enquiry as may be considered necessary, that a candidate, having regard to his/her character and antecedents, is suitable in all respects for appointment.
16. A candidate must be in good health and free from any physical defect likely to interfere with the discharge of his/her duties as an officer of the Service. A candidate who (after such medical examination as may be prescribed by the competent authority) is found not to satisfy these requirements will not be appointed.
17. If a candidate’s handwriting is not legible, deduction may be made on this account from the total marks otherwise accruing to him/her.
18. No traveling and daily allowance will be paid for the journey performed in connection with the examination, interview and medical examination. All other matters not specified or for which no provision has been made in these rules shall be regulated by rules and orders applicable to the service to which recruitments are being made.
19. Scientific calculators are allowed IS 456 code and steel tables shall be allowed, however these items are subject to screening before entry into the hall.
20. Other electronic devices including smart phone shall not be allowed.

Memo No. 33 / RE / B

Copy for information to:-
1. Secretary, SPSC
2. File &
3. Guard file

PCE-CUM-SECRETARY
ROADS & BRIDGES DEPARTMENT
Dated: 18.09.15.
APPENDIX- I

SCHEME AND SYLLABUS OF EXAMINATION FOR THE PURPOSE OF FILLING UP
THE POST OF JUNIOR ENGINEER (CIVIL)

The Examination will consists of 3 papers:-

<table>
<thead>
<tr>
<th>PAPERS</th>
<th>SUBJECT</th>
<th>FULL MARKS</th>
<th>TIME ALLOWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAPER - I</td>
<td>(a) General English</td>
<td>50 (fifty) marks</td>
<td>Total Time:-</td>
</tr>
<tr>
<td></td>
<td>(b) General Knowledge</td>
<td>50 (fifty) marks</td>
<td>2 Hour</td>
</tr>
<tr>
<td>PAPER - II</td>
<td>Main Paper</td>
<td>300 (Three hundred)</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

SYLLABUS:

PAPER - I

(A) GENERAL ENGLISH Composition comprehension and Grammar of Class XII Standard.

(b) GENERAL KNOWLEDGE Current events of State and National importance.

PAPER - II MAIN SUBJECT - 300 Marks

CIVIL ENGINEERING

Building Materials: Physical and Chemical properties, classification, standard test, uses and manufacture/quarrying of materials e.g building stone silicate based materials, cement (Portland), asbestos products, timber and wood based products, laminates, bituminous materials, paints, varnishes.

Estimating, Costing and Valuation: Estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, items of work-earth work, brick work (modular and traditional brick), RCC work, shuttering, timber work, painting, flooring, plastering. Boundary wall, brick building water tank, septic tank, bar bending schedule, centre line method, mid-section formula, trapezoidal formula, simpson's rule. Cost estimate of septic tank, fixable pavements, tube well isolates and combined footing, steel truss, piles and piles caps. Valuation-value and cost, scrap value, salvage value assessed value sinking fund, depreciation and obsolescence, methods of valuation.

Surveying: Principals of surveying, measurement of distance chain surveying working of prismatic compass, compass traversing, bearings, local attraction, plant table surveying, theodolite traversing, adjustment of theodolite, leveling, definition of terms used in leveling, contouring, curvature and refraction correction, temporary and permanent adjustment of dumpy level, method of contouring, uses of contour map, tachometric survey, curve setting, earth work calculation, advance equipment.
Soil Mechanics: Origin of soil, face diagram, definition-void ratio, porosity, degree of saturation, water content, specify gravity of soil grains, unit weights, density index and interrelationship of different parameters, grain sizes and distribution curves and their uses. Index properties of soils, Atterberg’s limits, ISI soil classification and plasticity chart. Permeability of soils, coefficient of permeability, determination of coefficient of permeability, unconfined and aquifers, effect stress, quick sand, consolidation of soil, principal of consolidation, degree of consolidation, pre-consolidation pressure, normally consolidated soil, e-log, p-curve, computation or ultimate settlement. Shear strength of soils, direct shear test, Vane shear test, triaxial test. Soil compaction, laboratory compaction test, maximum dry density and optimum moisture contain, earth pressure theories, active and passive earth pressure, bearing capacity of soils, plate load test, standard penetration test.

Hydraulics: Fluids properties, hydrostatics, measurement of flow, Bernoulli’s theorem and its application, flow through pipes, flow in open channel, weirs, flumes, spillways, pumps and turbines.

Irrigation and Engineering: Definitions, necessity, benefits, 211 effects of irrigations, types and methods of irrigations, hydrology-measurements of rainfall, run off coefficient, rain gauge, losses from precipitation-evaporation, infiltration, etc. Water requirement of crops duty delta and based period, Kharif and Robi crops, command area, time factor, crop ratio, over lap allowances, irrigation efficiencies. Different types of canals, types of canal irrigations, loss of water in canals. Canal lining-types and advantages. Shallow and deep wells, yield from a well. Weir and barrage, failure of weirs and permeable foundation, silt and scour, kennedy’s theory of critical velocity, Lacey’s theory of uniform flow. Definition of flood, causes and effects, method of flood control, water logging, preventive measures. Land reclamation, characteristics of affecting fertility of soils, purposes, methods, description of land and re-collimation processes. Major irrigation project in India.

Transportation Engineering: Highway engineering-cross sectional elements, geometric design, types of pavements, pavement materials, aggregates and bitumen, different tests, design of flexible and rigid pavements - water bound macadam (VVBM) and wet mix Macadam (WMM), gravel road, bituminous construction, rigid pavement joint, pavements of permanent way-slippers ballast mixtures and fastening track geometry points and crossing, track junction station and yards. Traffic Engineering-different traffic survey, speed flow density and their inter relationships, inter sections and inter changes, traffic signals, traffic operation, traffic signs and makings, road safety.


Civil Engineering: Drawing concepts, technical definition, cross sections, knowledge on units of lengths, volume, shapes.

Road and highway: Basic concepts

Public health engineering: Basic concepts
STRUCTURAL ENGINEERING

Theory of structures: Elasticity constants, types of beams - determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams. Moment of area and moment of inertia for rectangular & circular section, chimneys, dams and retaining walls, eccentric loads, slopes deflection of simply supported and cantilever beams, critical load and columns, torsion of circular section.

Concrete technology: Properties, advantages and uses of concrete, cement aggregates, importance of water quality, water cement ratio, workability, mix design, storage, batching, mixing, placement, compaction, finishing and curing of concrete, quality control of concrete, hot weather and cold weather concreting, repair and maintenance of concrete structures.

RCC Design: RCC beams flexural strength, shear strength, bond strength design of singly reinforced and double reinforced beams, cantilever beams. T-beams lintels. One way and two way slabs isolated footings. Reinforced brick works, column, stair cases, retaining wall, water tank (RCC design questions may be based on both Limit State and Working Stress Methods).

Steel Design: Steel design and construction of steel columns, beams roof, trusses plate girders.

The question will be of multiple choice, objective type in paper-1 (a) & (b)- 100 marks
and paper II main subject : (i) objective types - 100 marks
(ii) subjective /conventional type - 200 marks.

VIVA-VOCE/PERSOANLITY TEST - 50 Marks.

The test is intended to judge the mental caliber of candidate. In broad terms this is an assessment of not only his intellectual qualities but also social traits and his interest in current affairs, mental alertness, critical powers of assimilation, care and logical exposition, balance of judgment, variety and depth of interest.

JOINT SECRETARY
Road & Bridge Construction
Govt. of Sikkim
APPENDIX - II

CONDITIONS OF ELIGIBILITY FOR APPEARING IN THE EXAMINATION

In order to be eligible to appear in the Competitive Examination, a candidate must satisfy the following conditions, namely:-

a. Age

Should have attended the age of 18 yrs. but should not have exceeded 30 yrs. as on first day of the advertisement. The maximum age limit shall be relaxed upto 5 yrs. in respect of candidates belonging to BL, SC, ST & 3 yrs. for OBC candidates. The upper age limit shall be relaxed up to 50 yrs. relaxation granted by Noti.No.M(3) P+III/74/Gen/DOP dt.23.11.12

b. Essential Qualification

Diploma in Civil Engineering (LCE) from a recognized Institute or equivalent.

c. Other Requisites

i) Candidates must be in possession of either Sikkim Subject Certificate or Identification Certificate issued by the competent authority under relevant orders of the State Government.

ii) Local Employment Card holder.

iii) Should be conversant with the custom and usage of Sikkim.

JOINT SECRETARY
Road & Bridge Department
Govt. of Sikkim, Gangtok