



नेशनल प्रोजेक्ट्स कन्स्ट्रक्शन कारपोरेशन लिमिटेड

(भारत सरकार का उधम)

NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED
(A GOVT. OF INDIA ENTERPRISE)

Advt. No. NPCC/Regular /AE/Nov./2016

Recruitment of Assistant Engineers (Civil)

NPCC Limited, a Schedule "B" Premier Central Public Sector Enterprise engaged in Engineering Construction, Planning, Operation and Project Management Consultancy in the fields of Industrial Infrastructure, Thermal, Hydroelectric, Tunneling, Railways, Highways, Surface Transport, Townships, Buildings, Dams, Weirs, Barrages, Public Health, Environmental Engineering and Border Fencing & Flood Lightning Works etc. is in urgent need of Assistant Engineer, NE -7 Grade on regular basis at Corporate Office, Zonal Offices & Projects all over India.

NPCC Limited proposes to recruit suitable Technical Staff in the following grade and discipline to meet their requirements. Applications are invited from dynamic and result oriented professionals from open market for the post given below on regular/permanent absorption basis. The selected candidates on joining the Corporation will be under probation for a period of **eighteen months** unless otherwise specified. During the period of probation, an employee shall be liable to be discharged from the service of the Corporation without any notice or without assigning any reasons therefore, at the sole discretion of the Corporation. Candidates have good prospects of growth in the company. Reservations to SC/ST/OBC and physically handicapped persons would be provided as per extant Government orders.

IMPORTANT DATES:

Particulars	Date
Opening Date & time for Online Registration of applications	26.11.2016 at 10:00 AM
Last Date & time of close of registration and submission of application (Step-I & Step-II)	26.12.2016 upto 06:00 PM
Last Date & time of closing On-Line submission of application fees through Debit Card/Credit Card/Net Banking through SB collect system of State Bank of Patiala (SBP) (Step-III)	28.12.2016 upto 11.45 PM

A candidate with the Diploma (three years) in Civil Engineering discipline can apply as per details given below:

S. No.	Post	No. of Posts (Current/ Shortfall)	Scale of Pay (Rs.)	Upper age limit as on 31.10.16	Minimum Qualification	Job responsibilities
1.	Assistant Engineer (Civil)	50 Nos. {UR-25, OBC(NCL)- 13, SC-8 & ST- 4}	NE-7 (Rs. 10000- 25700) (IDA)	28 years	Diploma in Engg. (Civil)- 3 yrs. Course. Knowledge on 2D drawings / and use of AutoCAD preferred. (Bachelor's and Master's level in Civil Engg. from regular course can also	The candidate will be responsible for supervision of construction activity related to high rise Buildings/ Bridges/

					apply. However, due to their higher qualification, they will not be given any extra benefit during recruitment at the time of joining, if selected or afterwards or at the time of promotion).	residential building & water supply/sewer line works/Roads.
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Minimum qualification for Assistant Engineer, NE -7 grade is Diploma in Civil Engg. (3-years regular course) obtained from an Indian University/Institute duly recognized by UGC/AICTE.

However, any applicant having regular course of Degree or Master's Degree in Civil Engineering from University/Institute duly recognized by UGC/AICTE is also eligible to apply.

Diploma/Degree/Master's Degree in Civil Engineering from Correspondence Course is not eligible.

The number of vacancies is provisional subject to increase/decrease. Out of above posts, the posts which have been reserved for Persons with Disabilities on horizontal basis are as follows:

Category	No. of vacancies	Functional classifications	Physical requirement
Hearing Impairment and Locomotive Disability or Cerebral Palsy	01	OA or OL or HI	S, ST, BN, W, SE, MF, C, R, W & RW

The abbreviations used above are as follows:-

Code	Physical Requirements
S	Work performed by sitting (on bench or chair)
ST	Work performed by standing
BN	Work performed by bending
W	Work performed by walking
SE	Work performed by seeing
MF	Work performed by manipulation by Fingers
C	Work performed by Communication
R, W & RW	Work performed by reading and writing

Code	Functions
OL	One leg affected (R or L)
OA	One arm affected (R or L)
HI	Hearing Impaired

1. ELIGIBILITY CONDITIONS:

(i) **Only Indian Nationals should apply.**

(ii) **Relaxation in upper age limit:-**

(a) Upper age limit is relaxed by 5 years for SC/ST, 3 years for OBC (Non-Creamy Layer), and PWD & Ex-Servicemen as per Govt. of India rules.

(b) Reservation of vacancies in respect of Scheduled Castes, Scheduled Tribes, Other Backward Classes including minority (non-creamy layer), Ex-Servicemen, Persons With Disabilities (degree of disability 40% or above) as per Govt. of India guidelines.

- (c) The OBC Candidates who belong to "Creamy Layer" are not entitled for concession admissible to OBC category and such candidates have to indicate their category as General/UR. The OBC (Non-Creamy Layer) candidates are required to submit requisite certificate in the format prescribed by Government of India and from a Competent Authority issued within six months from the date of publication of advertisement in employment news. Further, OBC (Non-Creamy Layer) candidates will have to give a self-undertaking indication that they belong to OBC (Non-Creamy Layer) category at the time of joining, if selected.
- (d) Persons with Disabilities are required to furnish Medical Certificate in relation to their disability from Medical Board of an approved Government Hospital.
- (e) Category (SC/ST/OBC/PWD) once filled in application form will not be changed and no benefit of other category will be admissible later on. The reserved category candidates are required to submit requisite certificate in the format prescribed by Government of India and issued by the Competent Authority.
- (f) In Case any Ambiguity/Dispute arises on account of interpretation in Hindi Version, English version will prevail. NPCC regular employees fulfilling the criteria may apply for the position through proper channel. Age no bar for internal candidates.
- (g) The date of birth accepted by the Company is that entered in the Matriculation or Secondary School Leaving Certificate or in a certificate recognized by an Indian University as equivalent to matriculation or in an extract from a Register of matriculates maintained by a University and that extract must be certified by the proper authority of the University or in the Higher Secondary or an equivalent examination certificate.

2. APPLICATION FEES: (Non-refundable)

General /OBC candidates	Rs. 1000/-
SC/ST/PWD/Ex-Servicemen	Rs. 400/-

Note : Bank Charges would be extra as per applicable

NOTE:

- (i) Notwithstanding the aforesaid provision for age relaxation/concessional fee, a PWD will be considered to be eligible for appointment only if he/she (after such physical examination as the Company or the appointing authority, as the case may be, may prescribe) is found to satisfy the requirements of physical and medical standards for the concerned Posts to be allocated to PWD candidates by the Company.
- (ii) CANDIDATES SHOULD NOTE THAT THE FEE SUBMITTED THROUGH ANY OTHER MODE EXCEPT THE MODE SPECIFIED WILL NOT BE ACCEPTED BY NPCC AND SUCH APPLICATIONS WILL BE TREATED AS WITHOUT FEE AND WILL BE SUMMARILY REJECTED.
- (iii) Fee once paid shall not be refunded under any circumstances nor can the fee be held in reserve for any other examination or selection.
- (iv) Application without the prescribed fee would not be considered and summarily rejected. No representation against such rejection would be entertained.

3. SELECTION PROCESS:

- (i) **Location of Written Examination:
Chennai, Delhi/NCR, Guwahati, Kolkata & Mumbai**

- (ii) The candidate will be allowed to choose 1 (One) written examination center, out of the above mentioned 5 cities.
- (iii) There will be objective type written test with **120 questions** with total time: **120 minutes**.
- (iv) The examination paper will contain total 120 objective type questions containing 80 questions related to post / discipline for which the candidate has applied, 10 questions on General Knowledge, 10 questions on General Intelligence/reasoning, 10 questions on Numerical Ability and 10 questions on English language.
- (v) There will be no negative marking.
- (vi) Test Paper will be bilingual: Hindi & English.
- (vii) **Disclaimer: The required educational qualification should be from regular college and not through correspondence. Correspondence course will not be considered valid. Education imparted through distance education mode will not be considered valid.**
- (viii) **Syllabus for the exam is based on Staff Selection Commission (SSC) and detailed in Annexure-I.**
- (ix) Only 1 (One) written examination city will be allowed to the candidate. Once submitted can not be altered.
- (x) Company will shortlist candidate for admission to written test.
- (x) Final selection will be through written test.
- xi) In case of tie of marks obtained by more than one Candidates, the resolution will be done in following order
 - a) The candidate with earlier/older Date of birth, will be placed higher i.e. the candidate in age seniority will be placed higher
 - b) In case of tie as mentioned at (a) above, the candidate with higher percentage pass marks in qualifying examination, as per eligibility criteria, will be placed higher.

The facility for conducting written examination for Persons with Disabilities will be provided in accordance to Ministry of Social Justice & Empowerment, Department of Disability Affairs Letter No. F. No.16-110/2003-DD/III dated 26th February, 2013.

Empanelment of Candidates:

The final empanelment would be done on the basis of total marks secured (written score) by the candidate.

The offer of appointment shall be issued to the empanelled candidates in the order of category wise merit and based on requirement of the company.

HOW TO APPLY :

Candidates satisfying the eligibility conditions have to apply through online registration system of NPCC i.e. <http://www.npcc.gov.in> . Please go carefully through instructions under 'HOW TO APPLY' in this advertisement and also detailed instructions given on the main page of online filling up of application.

No application through other mode will be accepted. No documents are required to be sent to NPCC in connection with the application.

Online submission of the applications will be allowed on the website. The last date for registration and submission of application (Step-I & Step-II) is 26.12.2016 upto 06:00 PM and On-Line submission of application fees through Debit Card/Credit Card/Net Banking through SB collect system of State Bank of Patiala (SBP) is 28.12.2016 upto 11:45 PM (Step-III).

While applying on-line, **candidate should have the following readily available:**

- E-mail ID (which must be valid for at least one year from the date of application)
- Mobile No (which must be valid for at least one year from the date of application)
- Un reserved and OBC candidates have to pay a non-refundable fees of Rs.1000/-(Rupees One Thousand Only) and bank charges applicable as Processing and Examination fees on line mode only, as per instruction given in above website, upon completion of registration and submission of application.

Candidates belonging to SC/ST/PWD/Ex-Servicemen have to pay a non refundable fees of Rs.400/-(Rupees four hundred only) and bank charges applicable as processing and Examination fees online, upon completion of registration and submission of application.

Demand Draft/ Money Order / Postal Order or any other mode of payment is not acceptable.

- A soft copy of recent colour passport size photograph of the full face (front view) (not older than 3 weeks) of file size between 50kb-80kb in jpg/ jpeg format. Ensure that the size of the scanned image is not more than 80kb.
- A soft copy of signature file between 10kb-30k in jpg/ jpeg format. Ensure that the size of the scanned image is not more than 30kb.
- Scanned soft copy of relevant document (as applicable) between 50kb-1000kb in jpg/ jpeg/pdf format. Ensure that the size of the scanned image is not more than 1000kb.
- Online payment of Processing and Examination fees and valid email ID, Mobile Number, Photograph & Signature are mandatory fields without which applications will not be registered.

STEPS FOR APPLYING:

Step-1 (SIGN UP):

- a) Candidates are now ready to apply on-line by visiting the NPCC website and going to the tab "CAREER" on NPCC website : www.npcc.gov.in
- b) Candidates will get the instructions page and they will have to accept the terms & conditions by clicking '**I Agree**' Checkbox given below and pressing the '**Start**' button.
- c) Applicants are needs to sign up first with their valid **E-mail ID** and **Mobile No.** with them while signing up.
- d) The One-time **Password** and **login details** will be sent to the email id provided, so candidates are advised to verify the correctness of the email id before proceeding.

STEP- 2:

- a) Candidates are now ready to apply on-line by revisiting the On-line Application website at <http://www.npcc.gov.in>
- b) After changing the One-time Password to a password of their choice, candidates can proceed further. The candidate should now login with the new password and fill up all the information asked in the on-line form about himself/herself correctly, and complete the Registration.

- c) The candidate should now fill up all the desired information in the online form about himself/herself correctly. The candidate will see his/her application under option PREVIEW. Before submission of his/her Step-II details, the candidate should check his/her all details and make necessary corrections, under option EDIT (if any), **Candidates are not allowed to change the Email –id and Mobile Number under EDIT option.**
- d) On successful registration of on-line application, candidates are advised not to attempt for re-registration for the same post. In case of multiple registrations for the same post, the candidature is liable for cancellation/rejection without any notice/intimation to the candidate. Candidate is required to download the online form generated by the System with unique registration number, which may be retained for future reference.

Instructions to upload Photo, Signature, Category (if applicable) and other relevant Certificates

Applicants should upload the scanned (digital) image of their photograph, signature and other relevant Certificates as per the process given below. The applicant should note that only **jpg or jpeg** formats are acceptable:

i) Photograph:

- a) Photograph must be a recent passport size colour photograph (not older than 03 weeks).
- b) Make sure that the photograph is in colour, taken against a light-coloured, preferably white, background. Look straight at the camera with a relaxed face. If the photograph is taken on a sunny day, have the sun behind you, or place yourself in the shade, so that you are not squinting and there are no harsh shadows. If you have to use flash, ensure there's no "red-eye". If you wear glasses make sure that there are no reflections and your eyes can be clearly seen. Caps, hats and dark glasses are not acceptable. Religious headwear is allowed but it must not cover your face.
- c) Dimensions of the image should be approximately 200X230 pixels. It will not be possible to accommodate larger images. Size of file should be between 50kb-80kb in jpg/jpeg format only. Please ensure that the size of the scanned image is not more than 80kb.
- d) If the size of the file is too large, then adjust the settings of the scanner such as the DPI resolution, number of colours etc., during the process of scanning. Minimum resolution should be 200 dpi.

ii) Signature image:

- a) The applicant has to sign on white paper with Black ink pen.
- b) The signature must be of the applicant only and not of any other person. If at any stage the signature is not found to be matching with the candidate's actual signature, the applicant's candidature may be summarily rejected.
- c) Please scan the signature area only and not the entire page.
- d) Dimensions of the image should be approximately 140X60 pixels. It will not be possible to accommodate larger images. Size of file should be between 10kb-30k in jpg/jpeg format only. Ensure that the size of the scanned image is not more than 30kb.

iii) Category/Educational Qualification & other relevant Certificates:

- a) Please scan the relevant certificates (issued by competent authority), should be clearly visible.

- b) Size of file should be between 50kb–1000kb in jpg/jpeg/PDF format only. Ensure that the size of the scanned image is not more than 1000kb.

The candidate should now login to upload his/her Photograph, Signature and Certificate as per the instructions given in the following paragraphs:

iv) Up-loading the photograph, signature, Category /Educational and other relevant certificates:

- a) There are separate links for uploading Photograph, Signature and Certificates. Click on the respective link to Upload Photograph/Signature/Certificates.
- b) Browse and select the location where the scanned Photograph/Signature/Certificates files have been saved. Select the file by clicking on it.
- c) Click the 'Open/Upload' button. The photograph/signature/ certificate file will get uploaded.

If the file size and format are not as prescribed, an error message will be displayed. In such a case, change the size and format of the file as required and re-upload.

STEP- 3: Submission of Application Fees

- a) On completion of Step-2, and after 24 hours candidate needs Login and Click on **"Make Online Payment"** link and deposit the requisite examination fee through On-line mode only.
- b) The candidates who have deposited the application fee will receive a confirmation mail and SMS of their payment status on the next working day, although it may take up to 48 hours from the Bank's business closing hours for the payment to be confirmed.
- c) In case the candidate has deposited the fees in the Bank, but he / she has not received the Email or SMS even after 48 hours of the deposit of the fees, then he / she should send the details in the "Grievance Redressal Form", given at the end of this advertisement and send the same by email along with a scanned copy of the e-receipt at the mail id **npcchelpdesk2016@gmail.com** .

METHOD FOR SUBMISSION OF APPLICATION FEES (Non-refundable):

Candidate needs to re-login and click the link/tab "Make Online Payment" active after 24 hours of submission of the application. The candidates are required to click on **"Make Online Payment"** after 24 hrs of submission of online application and deposit the requisite examination fee online through **Internet Banking /Debit/Credit Card only** from State Bank Collect system of State Bank of Patiala (SBP) website. The journal number or the Transaction number given by the Bank is to be retained for future reference. The details of fees to be deposited by the candidate through On-line mode are as follows:

General /OBC candidates	Rs. 1000/-
SC/ST/PWD/Ex-Servicemen	Rs. 400/-

Note : Bank Charges would be extra as per applicable

Guidelines for deposit of Examination Fee through State Bank Collect System (SBP) (Link will active up to/after 24 hrs of submission of online Application)

- Click on **"Make Online Payment"**. On clicking the link, the candidate will be navigated to State Bank Collect (State Bank Patiala) page of NPCC displaying their logo and available categories of payments in drop boxes.
- On the next screen ,

- a. Please enter your NPCC application number,
- b. Date of birth.
- On the next screen, (following Data will appeared automatically from database)
 - Application Sequence Number,
 - Date of Birth
 - Name of applicant,
 - Mobile number,
 - Post Applied
 - Social Category
 - Email ID,
 - Exam. Fees
- Verify the details and click on 'Confirm'.
- Now you will be taken to payment gateway
- Select appropriate '**Mode of Payment**'
- Check the charges/commission applicable for selected 'Mode of Payment'
- Pay 'online' **using Internet Banking/Credit Card/Debit Card** and print the e-receipt for your record.

IMPORTANT INSTRUCTIONS

- NPCC will not be responsible for any loss of email/admit card sent, due to invalid/wrong email id etc.
- Admit Card will not be sent by post. It should be downloaded by the candidates from the website.
- **Candidates will be allowed to appear for the Written Test only with Admit Card and not with the acknowledgement Slip (*Online submitted Application form*).**
- It is compulsory for candidates to carry a Original photo ID such as Voter's ID, Driving License, ID Cards issued by Government or other Offices, Aadhaar card, etc. Candidates should carry both, the printed copy of E-Admit Card and photo ID (as mentioned above) while coming to appear in the examinations. Candidate will not be allowed entry into the examination hall/venues, in case any of these are not available.
- **Candidates should retain a photocopy of their acknowledgement Slip (*Online submitted Application form*) for future reference.**
- Canvassing in any form will disqualify a candidate.
- **ACTION AGAINST MISCONDUCT:**
 - (i) Candidates are advised in their own interest that they should not furnish any documents/information that are false, tampered, fabricated or should not suppress any material information while filling up the "on-line" application.
 - (ii) At any stage of recruitment or later, if a candidate is or has been found guilty of any misconduct such as:
 - a) Using unfair means during the examination; or
 - b) Impersonating or procuring impersonation by any person; or
 - c) Misbehaving in the examination hall; or
 - d) Resorting to any irregular means in connection with his/her candidature during selection process; or
 - e) Using undue influence for his/her candidature by any means; or

- f) Submitting of false certificates/ documents /information or suppressing any information at any stage; or
 - g) Giving wrong information regarding his/her category (SC/ST/OBC/PH/Ex-Servicemen) while appearing in the examination or thereafter; or
 - h) Writing irrelevant matter including obscene language or pornographic matter in the script(s); or
 - i) Being in possession of calculator, mobile phone, pager, bluetooth, headphone, earplug, laptop, ipad and other computing /communication devices;
 - j) Possessing any form of textual material / handwritten (or typed) pages etc. in addition to rendering himself/herself liable to legal/criminal prosecution, will also become liable to be:
 - i) Disqualified from the examination and /or ;
 - ii) Debarred either permanently or for a specified period from any exam/recruitment and /or
 - iii) Discharged/removed/dismissed from service, if the act of misconduct comes to notice after his/her appointment to the service of NPCC.
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- Calculator, Mobile phone, Pager, Bluetooth, Headphone, Earplug, Laptop, ipad and other computing/communication devices will not be permitted inside the examination centre. Therefore, the candidates shall be responsible for safe-keeping of such devices because arrangement for keeping these devices safe cannot be assured by NPCC/Examination Centre.
 - The original testimonials/documents will have to be produced at the time of joining. If any of their claims is found to be incorrect, their candidature shall be summarily rejected.
 - Departmental Candidates of NPCC are also required to apply online. However, if selected, they will have to forward the Hard copy of the Online Application form through their controlling officer and P&A Department to Group General Manager (HR), NPCC Limited, Corporate Office, Faridabad without which the candidature will not be considered.
 - Serving Government/PSU officials, if selected will be allowed to join only after they are properly relieved from their parent organization.
 - Candidates should submit only single application and application once submitted cannot be altered. A valid e-mail ID is essential for submission of the online application. NPCC will not be responsible for bouncing of any e-mail sent to the candidates.
 - All information regarding this recruitment process would be made available in the 'Career' section of NPCC website only. Applicants are advised to check the website periodically.
 - Candidates should ensure that the same passport size photograph is used throughout this recruitment process.
 - No application will be entertained after the expiry of last date of receipt of Online Application Form.
 - Any corrigendum/addendum/errata in respect of the above advertisement shall be made available only on our official website www.npcc.gov.in. No further press advertisement will be given. Hence prospective applicants are advised to visit NPCC website regularly for above purpose.
 - No correspondence or personal enquires shall be entertained by NPCC.
 - **No TA/DA will be paid to the applicants for appearing in the written test.**

Note 1: Since these application forms are to be processed in a computerized system, due care should be taken by the candidates to fill up their application form correctly.

Note 2: The candidates should ensure that they fulfill all the eligibility conditions. Their admission at all the stages of selection for which they are admitted by NPCC will be purely provisional, subject to their satisfying the prescribed eligibility conditions. If on verification at any time before or after examination, it is found that they do not fulfill any of the eligibility conditions; their candidature for the Examination will be cancelled by NPCC. If at any time before or after joining of the candidate in NPCC, it is found that they do not fulfill any of the eligibility conditions; or their eligibility conditions are found to be false or misrepresented, their services will be terminated by NPCC.

Note 3: Candidates are requested to keep ready self attested copies of the following documents at the time of joining, if selected, otherwise their joining in NPCC is liable to be cancelled:-

1. Certificate of Date of Birth.
2. Certificate of Educational Qualifications.
3. Certificate in support of claim to belong to Scheduled Caste, Scheduled Tribe and Other Backward Classes, Ex-Serviceman or Physically Handicapped, where applicable as per formats prescribed above.
4. Certificate in support of claim for age/fee concession, where applicable.

GENERAL INFORMATION AND INSTRUCTIONS:

1. Before applying, candidate should ensure that he/she fulfills the eligibility criteria and other norms mentioned in this advertisement.
2. Essential qualification should be from AICTE/UGC/Govt. approved Institution or University.
3. Management reserves the right to cancel / restrict / enlarge / modify / alter the recruitment / selection process, if need so arises, without issuing any further notice or assigning any reason thereafter.
4. Wherever CGPA/OGPA/DGPA or Letter Grade in a degree /diploma is awarded, its equivalent percentage of marks must be indicated in the application form as per norms adopted by University / Institute.
5. In the absence of any proof of norms adopted by the University / Institute to convert CGPA/OGPA/DGPA into percentage, the criteria adopted by AICTE shall be followed.
6. Records of the candidates not selected shall not be preserved beyond 06 months from the date of publication of Select List.
7. Candidates selected in NPCC are liable to be posted anywhere in India. On satisfactory completion of the period of probation, the employee shall be regularized in the post, but shall not be regarded as having been automatically regularized, unless an order to this effect is issued to him in writing.
8. If the SC/ST/OBC/PWD Certificate has been issued in a language other than English/Hindi, the candidates will be required to submit a self certified translated copy of the same either in English or Hindi.
9. Candidature of a registered candidate is liable to be rejected at any stage of recruitment process or after recruitment or on joining, if any information provided by the candidate is false or is not found to be in conformity with eligibility criteria mentioned in the advertisement.

10. Service & Agreement Bond: Selected candidates while joining the post of Assistant Engineer will be required to execute a Service Agreement Bond for a total value of Rs.1,00,000/- to serve the Corporation for a minimum period of three years after joining in the Corporation, otherwise in case the selected candidate wants to leave the Corporation before completing the minimum three years, he/she will give one month advance notice to the Corporation or compensation equivalent to one month pay and all allowances. This would be in addition to the amount, which would be recoverable.

Syllabus for Assistant Engineer (Civil)

Part-1 (80 Questions/80 Marks)

Civil Engineering

- i) **Building Materials** : Physical and Chemical properties, classification, standard tests, uses and manufacture/quarrying of materials e.g. building stones, silicate based materials, cement (Portland), asbestos products, timber and wood based products, laminates, bituminous materials, paints, varnishes.
- ii) **Estimating, Costing and Valuation** : estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, Items of work – earthwork, Brick work (Modular & Traditional bricks), 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, flexible pavements, Tube well, isolated and combined footings, Steel Truss, Piles and pile-caps. Valuation – Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation.
- iii) **Surveying** : Principles of surveying, measurement of distance, chain surveying, working of prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, adjustment of theodolite, Levelling, Definition of terms used in levelling, contouring, curvature and refraction corrections, temporary and permanent adjustments of dumpy level, methods of contouring, uses of contour map, tachometric survey, curve setting, earth work calculation, advanced surveying equipment.
- iv) **Soil Mechanics** : Origin of soil, phase diagram, Definitions-void ratio, porosity, degree of saturation, water content, specific gravity of soil grains, unit weights, density index and interrelationship of different parameters, Grain size distribution curves and their uses. Index properties of soils, Atterberg's limits, ISI soil classification and plasticity chart. Permeability of soil, coefficient of permeability, determination of coefficient of permeability, Unconfined and confined aquifers, effective stress, quick sand, consolidation of soils, Principles of consolidation, degree of consolidation, pre-consolidation pressure, normally consolidated soil, e-log p curve, computation of 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 content, earth pressure theories, active and passive earth pressures, Bearing capacity of soils, plate load test, standard penetration test.
- v) **Hydraulics**: Fluid properties, hydrostatics, measurements of flow, Bernoulli's theorem and its application, flow through pipes, flow in open channels, weirs, flumes, spillways, pumps and turbines.
- vi) **Irrigation Engineering** : Definition, necessity, benefits, effects of irrigation, types and methods of irrigation, Hydrology – Measurement of rainfall, run off coefficient, rain gauge, losses from precipitation – evaporation, infiltration, etc. Water requirement of crops, duty, delta and base period, Kharif and Rabi Crops, Command area, Time factor, Crop ratio, Overlap allowance, Irrigation efficiencies. Different type of canals, types of canal irrigation, loss of water in canals. Canal lining – types and advantages. Shallow and deep to wells, yield from a well. Weir and barrage, Failure of

weirs and permeable foundation, Slit and Scour, Kennedy's theory of critical velocity. Lacey's theory of uniform flow. Definition of flood, causes and effects, methods of flood control, water logging, preventive measures. Land reclamation, Characteristics of affecting fertility of soils, purposes, methods, description of land and reclamation processes. Major irrigation projects in India.

vii) 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 (WBM) and Wet Mix Macadam (WMM), Gravel Road, Bituminous construction, Rigid pavement joint, pavement maintenance, Highway drainage, Railway Engineering- Components of permanent way – sleepers, ballast, fixtures and fastening, track geometry, points and crossings, track junction, stations and yards. Traffic Engineering – Different traffic survey, speed-flow-density and their interrelationships, intersections and interchanges, traffic signals, traffic operation, traffic signs and markings, road safety.

viii) Environmental Engineering : Quality of water, source of water supply, purification of water, distribution of water, need of sanitation, sewerage systems, circular sewer, oval sewer, sewer appurtenances, sewage treatments. Surface water drainage. Solid waste management – types, effects, engineered management system. Air pollution – pollutants, causes, effects, control. Noise pollution – cause, health effects, control.

Part-2 (40 Questions/40 Marks)

- (i) General Knowledge (10 Questions, 10 Marks)
- (ii) General Intelligence/Reasoning (10 Questions, 10 Marks)
- (iii) Numerical Ability (10 Questions, 10 Marks)
- (iv) English Language (10 Questions, 10 Marks)

Grievance Redressal Form

In case, the candidate is not able to get SMS/e-mail for receipt of payment confirmation after **48 hrs.** on completion of Step-2, then he/she should fill-in the following details and send the same by email on **npcchelpdesk2016@gmail.com** alongwith the scanned copy of the printed e-receipt of payment:

Sl. No.	Particular	Detail
(i)	Name of the candidate	
ii)	Post applied	
(ii)	Application /Registration Ref. No.	
(iii)	Date of submission of online application	
v)	Date of online payment	
vi)	e-receipt/Transaction No.	
vii)	Mobile No.	
viii)	Registered e-mail ID	

Scanned copy of print out of e-receipt of payment is to be attached by candidate.
