



Office order No. 200 Year 2015

Sub: Professional Examination of Deputy Engineer / Assistant Executive Engineer to be held at Gujarat Jalseva Training Institute, Gandhinagar for the year 2015

- Ref.: (1) Narmada and water resources department Resolution No. PER/2685/23127/G(i) dtd 24.10.1990
(2) Government in GAD, Sachivalaya Gandhinagar Resolution No.KHTP/1004/1473 – K dtd 17.02.2006

Professional Examination of DEE/AEE will be held from 14.10.2015 to 17.10.2015 for which detailed programme is appended herewith.

It is requested to forward the applications of DEE/AEE who are to appear in this examination, in enclosed application form, so as to reach this office on or before 30/09/2015. Time barred application will not be entertained.

Proposed general rules and procedure of professional examination with syllabus is attached herewith.

The officer forwarding the application should verify all the details and submit the application with special report & eligibility certificate, failing which the application will not be considered.

The general rules and the application can also be downloaded from GWSSB'S official website.

(D.G. Ramchandani)
Chairman

Professional Examination Committee
For DEE/AEE & Supt. Engr.
GWSSB - Gandhinagar

અ.ઇ.જી.આ. વર્તુળ, ગોધરા	D.A.
આવક વં.	
તારીખ	
શાખા	જા
ક.મ.	
મી.સી.ઈ.એ.મ.	
અ.ઇ.જી.આ.	

- (1) Proforma of Application
(2) Programme Detail
(3) Syllabus
(4) Proposed rules

Letter No.GJTI/PE/DEE-AEE/ 2344 /2015
Office of Chief Engineer and Director
Gujarat Jalseva Training Institute
Sector 15, Gandhinagar
Date 20/09/2015

(P.T.O.)

Copy f.w.c.s. to

- (1) C.E. Moni.& Planning, G.W.S.& S. B. Gandhinagar for information and necessary action please.
- (2) C.E. (Mech), G.W.S.& S. B. Gandhinagar for information. and necessary action please.
- (3) Chief General Manager, G.W.I.L. ,Gandhinagar for information. and necessary action please.
- (4) C.E.O. WASMO, Gandhinagar for information. and necessary action please.
- (5) Chief Administrative Officer, G.W.S.& S. B. Gandhinagar for information. and necessary action please.
- (6) P.A. to Member Secretary, G.W.S.& S. B. Gandhinagar for information.
- (7) P.A. to Chairman , G.W.S.& S. B. Gandhinagar for information.
- (8) C.E. Zone I / II / III / IV / V for information and necessary action please.
- (9) System Analyst, G.W.S.& S. B. Gandhinagar for information and to upload given information.
- (10) All Superintending Engineer, P. H. Circle for information and necessary action please.
- (11) All Executive Engineer, P H W Div. for information and necessary action please.
- (12) All Deputy Executive Engineer, P H Sani. Sub Div. for information and necessary action please.

PROFORMA OF APPLICATION

Application for admission to the professional Examination of Deputy Executive Engineer /Assistant Executive Engineer (Civil / Mechanical) to be held at GJTI, Gandhinagar for the year 2015

To,
The Chairman
Examination Committee and
Chief Engineer & Director
Gujarat Jalseva Training Institute
G W S & S Board
Gandhinagar – 382016

Sir,

I _____

permanent / Temporary, Deputy Executive Engineer/ Assistant Executive Engineer working in the office of _____

request to apply for the admission to appear in the professional Examination of Deputy Executive Engineer/ Assistant Executive Engineer (Civil / Mechanical) to be held at Gujarat Jalseva Training Institute, Gandhinagar centre.

The details required in accordance with rules which are given as under and are correct to the best of my knowledge.

1. Name in full :
2. Designation :
3. Mobile No. :

- E Mail Address :
4. Name of sub division/ Division, Circle, Zone :
5. Qualification :
6. Civil or Mechanical Wing :
7. Date of Birth :
8. Experience :
9. Name and full postal Address of office Where employed :
10. Date of first appointment Or promotion as AEE/DEE :
11. Whether he has appeared in the professional Examination previously, if so
- (a) Month & year of examination
- (b) Whether any exemption is earned? If so, detail of marks, year of Examination & subject exempted.
- © whether she/he intends to avail of Exemption earned? Indicate/state Say "Yes" or "No"
12. Nos. of trials in case of 2nd & 3rd trial details :
- Seat No. :
- year :
- Centre in where appeared :
- last should be given.
13. Whether additional (special) Chance has been granted (No. & date of order under which the additional (special) chance has :

been granted? And certified copy thereof.

14.No.& date of orders relaxing age :
and/ or service limits from
competent authority.

15. Remarks ,if any. :

Signature of Candidate &
Designation

SPECIAL REPORT

Certified that the particulars shown overleaf are verified with service records and found correct. He is eligible to appear in the professional examination according to rules of professional examination.The special report as required under para 4 of the circular is given below.

Special report of Shri _____

Working in the office of _____

- 1.Health & temperament :
Considering his duties
- 2.Initiative, resourcefulness :
And willingness to assume
responsibilities
- 3.Capacity of organization :
and to get work from
Subordinates
- 4.Capacity to take quick :

and sound decision

5. Quality of reporting :

Does he correctly and objectively appraise the work of persons working under him?

6. Character and temperament :

including relation with fellow officers/ and or employees and general public.

Counter Signature
Ex. Engineer /SE

Signature and stamp of
forwarding officer

Programme for Professional Examination of DEE/AEE (Civil/Mech.) of Gujarat Water Supply & Sewerage Board, Gujarat to be conducted at GJTI, Sector- 15, Gandhinagar from 14/10/2015 to 17/10/2015

Date	Time	Subject	Marks
14.10.15	10.30 to 13.30	General Engineering (Civil) OR General Engineering (Mech)	75
	14.30 to 17.30	Sub-divisional works Account	75
15.10.15	10.30 to 13.30	Special Subject (A) Water Supply and Sanitary Engineering OR (B) Mechanical Engineering and bore drilling Technology	75
	14.30 to 17.30	Practical Test (Civil) OR Practical Test (Mech.)	50
16.10.15 to 17.10.15	9.00 to 11.00	General Engineering (Civil-Oral))	75
		OR	
	11.00 to 13.00	General Engineering (Mech.-Oral)	75
		Special Subject (Oral) (Civil/Mechanical)	
14.00 to 16.00	14.00 to 16.00	Sub-divisional works Account (Oral)	75
		(Civil/Mechanical)	

(D G Ramchandani)
Chairman

Professional Examination Committee
for Dy. Ex. Engr & Asstt. Ex. Engr.
and Joint Director
GJTI, Sector-15
Gandhinagar

Syllabus for Professional Examination for DEEs. AEEs of GWSSB

PAPER – I

General (Civil Engineering)

Part: (i) Materials (ii) Construction (iii) CPM/PERT

Part- 1.

- | | |
|--|---|
| (a) Stones & bricks | General characteristics of stones & bricks, Engineering projects, Chief varieties and uses tests |
| (b) Cement | Composition and manufacture-storing. varieties are uses: Normal and rapid Hardening cements, properties and ISS tests. |
| (c) Cement Mortar | Composition, preparation and uses, properties, strength and tests, gaused mortars, proportioning of materials in mortars. Effect of water content. |
| (d) Cement concrete | Aggregate (Coarse and fine) Cement and water Proportioning and mixing Real, nominal and field mixes,grading of aggregates, water cement ratio,placing and curing strength of various mixes and uses. Causes of deterioration of concrete. |
| (e) Steel | Characteristics and uses of mild steel, torque sleet. |
| (f) Unit weight of building materials. | |

Part-ii

- (1) General principles of designing foundations, types of soils and safe bearing pressures on the various types of soils, various types of foundations suitable for various circumstances e.g. open foundations,black soil foundation,raft foundation,pile foundation,well foundation,grillage foundation etc.
- (2) Masonary: various types, permissible load on masonry structures, lintels, chhajjas & its RCC design, plaster and pointing.
- (3) Scaffolding centering and form works - different types: steel and wooden form works design for centering for arches and domes, removal of forms- periods and methods.
- (4) Uses of explosives and control blasting..

- (5) Drafting specifications for various items in building construction and water supply and sanitary projects. Points to be borne in mind while drafting specifications.
- (6) Analysis of rates and schedule of rates of Building construction.
- (7) Piles and pile driving. types of piles and methods of pile driving.
- (8) Doors and Windows - types, its fittings.
- (9) Reinforced centent concrete - Types of concrete, mix & its strength.Methods of construction of RCC structure, mixing, placing, curing, causes of deterioration of concrete, guninting construction joints in RCC structures.

Part-III

Network Analysis

- (1) PERT - CPM : Introduction and history
- (2) Difference between PERT-CPM
- (3) Critical path methods: Applications in construction and management of big projects
- (4) Constructions of network-diagram, separation of project activities
- (5) Earliest finishing time, normal time, float time, free float.
- (6) Advantage of network planning.
- (7) use of network analysis in construction activities.
- (8) Selection of technique.

Part-iv

R.O.U.(Right of Use)

Syllabus for Professional Examination for DEEs, AEEs of GWSSB (Mechanical)

PAPER – 1

Sub: General Engineering (Mechanical)

- (1) Standard weights and measurements of engineering materials required in mechanical field with their fundamental properties. Special attention should be given to metric system.
- (2) Types of various drives and their application.
- (3) Lifting equipment like tackles, cranes, pulley blocks, etc
- (4) Welding, brazing and soldering.
- (5) Tool-room and application of tools.
- (6) Use of precision instruments like micrometers, alignment indicators etc.
- (7) Foundation of structures - specially engine foundation and foundation of electric poles transformers.
- (8) Various types of pumps and its use – General 20 HP. selection, Design and layout diagram of large size machineries calculation of BHP, KW
- (9) Fuel oil and lubricants - general knowledge of various types of fuel oils, fundamentals of efficient lubrication. Different types of lubricating oils and their uses - methods of reclaiming used lubricating oils.
- (10) Estimation of works including M&R estimates of machineries.
- (11) General knowledge of the working of workshop. Movement of a job from shop to shop and its accounting etc including mobile workshop van .
- (12) Use of air for machinery - Air compressors and machines run on compressed air.
- (13) Geological survey, Geophysical instruments, Elcstro loggers.
- (14) Operation M&R of Hand pumps in general.
- (15) Write-off and disposal of machineries and vehicles.
- (16) Transformer and generating set. .
- (17) MS pipes, manufacturing process, specification, laying and jointing.
- (18) Corrosion, control and in devices.
- (19) Remote Sensing

Syllabus for Professional Examination for DEE, AEES of GWSSB

PAPER – II

Sub: Sub Divisional and work accounts.

(1) Initial records of accounts

- (1) Muster Rolls, Daily report
- (2) Measurement books, Types of MB, taking of measurement, use and maintenance of measurement books, various powers for recording measurement, standard MB.
- (3) Different kinds of bills , cheque receipts books, cash book, imprest and temporary advances, remittances into treasure, work abstracts, requisition, vouchers , hand receipts

(2) Stores

- 1) Initial records, receipts and issued including issue to contractor.
 - 2) Stores forms No. 7,8,9 and 10,13,14 and 15 USR
 - 3) Material at site accounts
 - 4) Procedure for procurement of material on Rate contract and at Divisional level.
 - 5) Market rate, SOR and issue Rate.
 - 6) Inspection of stores and verification.
 - 7) Procedure for recovery of material issue to contractors.
 - 8) Disposal of unserviceable stores..
- Contract
 - 1) Types of contract, Tender, Tender clause. LCB/NCB tenders. Turnkey contracts, D.G.S.&D rate contract. C.S.P.O.rate contracts, B.O.i. tender.
 - 2) Security Deposit .Earnest Money, Lapsed deposit.
 - 3) Pre qualification,Registration,special registration
 - 4) D.T.Ps.. Tender notice
 - 5) Advance payment, secured advance. Temp. advance, mobilization advance,machinery advance, L.S.advance
 - 6) EPC contract, e-tendering.
 - 7) Rules regarding contracts embodied in the diffetent form of agreement.
 - 8) Advantage of contract & departmental work
 - 9) Contractor's Bills. Refunds and remissions.
 - 10)Piece of work, contract work and regular work.

- 11)Aid and advances of contracts.
- 12)Two cover Bid system / Three cover Bid system.
- 13)LCB & ICB tenders.
- 14)Registration of contractors, types of contractors.
- 15) Extra item, excess, time limit, extension, RA &,final bill, reduced rate and part rate,liquidated damages.
- 16)Responsibilities of supervisory staff on work.
- 17) Documents and registers to be kept by the supervisory staff on site.
- 18)Revised estimate, reduce estimate, works slip, work abstract, sub head, sub-work, operation & out tern, supplementary and revised estimatè, AA&T.A.
- 19)The relevant chapters or paragraphs of the Bombay PWD Department Manual, Volume I and II. Public Works Accounts code and Book of Forms should be studied.

Syllabus for Professional Examination for DEEs, AEES of GWSSB

PAPER – III

Sub: Water Supply and Sanitary Engineering.

- 1) Project Report
- 2) Water quality and standards, importance of various parameters quality criteria and monitoring.
- 3) Water hydraulics - formula
- 4) Mechanism of water purification
 - Chlorination - Pre -Post & Super
 - Sedimentation
 - Coagulation and flocculation
 - Filtration
 - Aeration
 - Defluoridation
 - Desalination
 - Algae control
- 5) Water hammer
- 6) Leak detection and control
- 7) Operation and maintenance of rural water supply scheme.
- 8) Pipes fittings and appurtenances
 - Different types of pipes and water hammer control devices manufacturing specification, pipe jointing, laying, testing
 - Different type of valves
 - Sluice
 - Scour
 - Air
 - Zero velocity
 - Butter fly
 - Reflux etc.
 - Different type of tees, bends, reducers atc
- 9) Water demand projection
 - Various methods of population forecasting
 - Water supply rate norms

10) Water storage

- Mass balancing calculations

11) Pumping machinery

Different types of pumps, their advantages and limitations, Design of large size pumping machine.

Calculation of BHP, KW

12) Water supply sources

- Intake work.
- Tube well development and protection.
- Water harvesting structures.

13) Economical design of rising main

14) Importance of waste water parameters like, pH, BOD, COD, TDS, Pathogens, virus.etc.

15) Collection system for underground sewerage scheme

- Pipes and jointing materials
- Manholes
- Crown corrosion
- Sewerage hydraulics

16) Feasibility report and detail engineering for and under ground Sewerage scheme

17) Sewage treatment

- Oxidic, anoxic and facultative sewage treatment including
- Screen chamber
- Grit chamber
- Primary clarifier
- Trickling filter
- Activated sludge
- Oxidation
- Aerated lagoon
- Secondary clarifier
- Sludge digestion and sludge drying beds
- Effluent disposal

18) Construction specifications of various items of water supply and sanitary projects.

Syllabus for Professional Examination for DEEs, AEEs of GWSSB (Mechanical)

PAPER – III

Special Subject : Boring

- (1) Fundamental principles of boring.
- (2) Types of boring machines and their application including various types and rigs etc.
- (3) Types of bores.
- (4) Geological strata.
- (5) How to obtain and record the underground strata.
- (6) What are the method test the yield of bore.
- (7) How to test the vertical of the bore.
- (8) How to prepare the estimate.
- (9) Selection of boring mechanics.
- (10) Developing a bore & hydra fracturing process.
- (11) Various types of pumps used in Water supply & Sewerage projects with design finalization of electrical and mechanical drawing of large size mechanics.
- (12) Hand pump types and its M&R.
- (13) Bore – hole pumps.
- (14) Air Lift pumping.
- (15) Reciprocating pumps.
- (16) Methods used for cleaning the bores etc.
- (17) Mass awareness in drinking water, involvements of uses in water supply.
- (18) Corrosion control
- (19) MS pipe Manufacturing, laying, jointing
- (20) Butterfly valve, GI valves, Air valves
- (21) Water Hammer Control devices
- (22) Water harvesting, conservation and recharging
- (23) Fishing

Syllabus for Professional Examination for DEEs, AEES of GWSSB
PAPER-IV

SUBJECT- Practical and VIVA-VOCE TEST- ONE PAPER

1. Practical and oral test in surveying and setting out

- a) Care and adjustment of levels
- b) Levelling and reduction of levels
- c) Setting out angles
- d) Setting out a plan on the ground

The candidate may be required to carry out any of the above.

Syllabus for Professional Examination for DEES, AEES of GWSSB
(Mechanical)

PAPER – IV

Sub: Practical Drawing (Mechanical)

- (1) Isometric Orthographic, Elevation, Plan, Side-End views of a object of Mechanical Engineering.
- (2) Various types of bolts, nuts, rivets, threads.
- (3) Various types of joints.
- (4) Various types of gauges.
- (5) Sketches of Various parts of mechanical engineering.

General Rules and procedure of professional examination

Extract of some important general rules for professional examination of DEE/AEE (Civil/Mech). These rules are as per GOG, Gandhinagar Resolution No. KHTP-1004-1473-K dtd 17-02-2006 and as per Narmada and Water Resources Department Resolution No. PER/2685/23127/G(i) dtd 24-10-1990

1. **Minimum marks required to pass the departmental examination.**
A minimum of 50 % of the total marks in each paper required to pass the departmental examination.
2. **Regarding exemption in one or more than one paper in which more than 60 % marks are scored.**
Candidate who does not pass the departmental examination overall, but secures more than 60% marks in one or more subjects is not required to appear again in those subjects, the candidate gets exemption in such papers.
3. Grace marks will not be given to unsuccessful candidates in departmental examination.
4. Candidates who are 45 years old or above will not be exempted from passing the departmental examination.
5. Every Deputy Executive Engineer, Assistant Executive Engineer shall be required to pass relevant professional examination within three chances during the period of three years from the date of his/her regular appointment. However person belonging to schedule caste or schedule tribe and appointed as Overseer, Additional Assistant Engineer, Assistant Engineer, Deputy Executive Engineer, Assistant Executive Engineer shall be required to pass relevant professional examination within four chances during the period of four years from the date of his/her regular appointment. The person shall not be considered for any promotion or higher scale of pay till he/she passes the relevant examination.
Provided that in case of a person appointed as Deputy Executive Engineer, Assistant Executive Engineer, if the period of passing the examination as provided expires before the date of holding the relevant examination, the said period shall be deemed to have been extended until the date of declaration of results of examination so held.
Provided further that, chances already availed of under these rules, or chances availed under old rules, shall be counted as having been availed under these rules.
Provided further that any officiating and temporary Deputy Executive Engineer, Assistant Executive Engineer, who do not pass relevant examination within period and chances specified under these rules, shall not be considered for permanency in respective cadre, promotion or higher scale.
6. If any Deputy Executive Engineer, Assistant Executive Engineer, fails to pass the relevant examination within period and chances specified under these rules, he/she shall not earn any increment till he/she passes relevant examination.
Provided that, if in case of any such person (i.e. person failing to pass relevant examination at the last chance specified under these rules), the GWSSB head office is satisfied the person could not pass the relevant examination due to reason/reason beyond his/her control, the GWSSB head office may, by recording such reason/reasons, allow him/her one or more chance/chances to pass the the relevant examination.
Provided further that, in such case, if period of probation (i.e. person failing to pass relevant examination at the last chance specified under these rules, and in case of directly recruited person) is less than three years, the probation period shall be extended by a period not exceeding three years. However, in such case (i.e. person failing to pass relevant examination at the last chance specified under these rules, and in case of directly recruited person) if a person belongs to Schedule caste or Schedule Tribe, the probation period shall be extended by a period not

exceeding to four years. The person shall not earn any increment (in addition of extension of this probation period) till he/she passes relevant examination .

Any increment withheld under these rules shall become payable after the person passes the relevant examination from the date of declaration of result of relevant examination and further increment shall accure to him as if no increment has been withheld under these rules. However ,the person shall not be entitled to any arrears of pay that were lost for not passing the examination within specified period and chances.

7. Every six months (twice a year) the professional examination shall be held by the authorities specified.

8. Any engineering officer or engineering subordinate desiring to appear at relevant examination shall follow the procedure and instruction as above.

9. The candidates who have applied for the professional examination shall not be prevented from appearing by their superior officers on plea of heavy or urgent or emergency work. however ,the Board may, after considering and recording appropriate reason may relax a candidate from appearing in relevant examination.

Provided that, period and chances thus lost shall not be considered towards specified period and chances.

However, illness or any inability on part of candidate shall not be considered reason for not appearing at the relevant examination and period and chances specified under these rules shall remain applicable in such cases.

Earned leave for preparation for examination may be granted as far as possible. However, this may not be a matter of right.

10. The candidate shall be allowed to keep books with them at the time of professional examination. For this purpose only manuals published by Government of Gujarat /Government of India shall be allowed. There shall not be any marking flagging/annotation or any other writing in these publication. Any other publication like guide or explanatory notes etc. shall not be allowed. Papers of candidates found in possession of such banned material shall not be examined and he/she shall have to appear in the next examination. Such candidate shall also loose one chance for appearing in relevant examination. Presently only following books/manuals shall be allowed for this purpose.

A. Gujarat PWD Manual volume I & II

B. CPHEEO Manual

C. Gujarat civil service rules

D. Gujarat Treasury Rules

E. Gujarat Financial Rules

F. Arbitration Act (Only bare act without cases, comments etc.)

G. Land Acquisition Act (Only bare act without cases, comments etc.)

H. Labour Laws (Only bare act without cases, comments etc.) , includes Workman's Compensation Act, Industrial dispute Act, minimum wages Act, Building and other Construction workers (Regulation) Act.

I. IS code.

11. The process of professional examination becomes confidential matter in (1) selection of question paper setters (2) Selection of answer paper examiners (3) Question paper setting (4) question paper printing (5) Question paper preservation till examination day (6) Answer paper evaluation up to declaration of examination result . Due care shall be exercised in these processes.

(D G Ramchandani)
Professional Examination Committee
For Dy. Ex. Engr. & Asst. Ex. Engr.
and Joint Director
GJTI, Sector 15
Gandhinagar