1. Number of pages.
2. Date of repair.
3. Initials of Reference.

M.R.O. 1—2000—31-12-60

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Cons. 29.9.57

G.O. No. 1745 Press Mis.

2071

Dated 29—9—1857

Not to be folded or roughly handled

Fort Saint George, Public Works Consultation of 29th September 1857.

No. 70. Read the following letter from Colonel W. E. BAKER, Secretary to the Government of India; to H. FORBES, Esq., Acting Secretary to the Government of Fort Saint George, dated Fort William, the 31st July 1857, No. 3823.

SIR,

With reference to your Telegraph Message of the 27th April last, I have the honor to forward for the information of the Government of Fort Saint George, the Examination Tests for Certificates of Civil Engineering lately agreed upon by the Principals of the Civil Engineering Colleges of Roorkee and Calcutta, with the corresponding examinations for admission into the several grades of the Public Works Establishments under the direct control of the Government of India.

2. I am to remark, that it is not proposed to prescribe these exact tests for imitation in the Madras College but they may be taken as examples of the conclusions come to here, after much experience and discussion. In the opinion of the Principal of the Calcutta College, the entrance examination of a Student for the Engineer Class, should be so arranged as to call for about one half of the minimum theoretical acquaintance with the items of Mathematics and Mechanics required from a Candidate as a Probationary Assistant Engineer, in order to pass a successful examination. No knowledge of the other technical subjects would be required, the rest of the examination being confined to Literature, History, &c.

General scale of Examination Tests for the Civil Engineering Colleges and Department of Public Works under the Government of India.

		Lower Subordinate Establishment.							
		Sub Overseer I.	Sub Overseer II.	Sub Overseer III.	Sub Surveyor I.	Sub Surveyor II.			
Engineer Establishment.	Thomason College 1st Class Certificate.	600	200	100	225	200			
	Probationary Assistant Engineer.	300	100	75	200	100			
	Surveyor.	300	100	75	125	100			
	Promotion to Sub Engineer.	225	100	75	200	100			
Upper Subordinate Establishment.	Assistant Surveyor.	225	100	75	200	100			
	College 2d Class Certificate (English.)	300	100	75	200	100			
	Assistant Overseer.	225	100	75	200	100			
College.	3rd Class Certificate (Vernacular.)	225	100	75	200	100			
Lower Subordinate Establishment.	Sub Overseer I.	250	100	75	200	100			
	Sub Overseer II.	200	100	75	200	100			
	Sub Overseer III.	100	75	50	125	100			
	Sub Surveyor I.	225	200	125	200	100			
	Sub Surveyor II.	200	150	100	150	100			

Mathematics	600	250	300	250	350	300	250	225	200
Mechanics	250	250	300	250	350	300	250	225	200
Estimating	200	200	300	250	350	300	250	225	200
Civil Engineering (Theory)	300	300	300	250	350	300	250	225	200
Do. (Design)	250	250	300	250	350	300	250	225	200
Surveying	350	350	350	250	350	300	250	225	200
Drawing	250	250	300	250	350	300	250	225	200
Book Keeping	100	100	100	100	100	100	100	100	100
Geology	100	100	100	100	100	100	100	100	100
Vernacular	100	100	100	100	100	100	100	100	100
English	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	2,500	2,000	1,150	1,500	440	1,240	1,000	1,240	1,240

N. B.—One-tenth of the marks allotted to each paper to be assigned to "neatness."

STANDARD.

For Certificate $\frac{4}{5}$ of the total number of marks and $\frac{4}{5}$ of the marks on each subject.

Honors { Great Credit $\frac{5}{6}$ do. do. / Highly distinguished $\frac{5}{6}$ do. do.

* Interchangeable according as candidate be European or Native.

DETAIL OF EXAMINATION TESTS NO. 1.

General Education.

Para. 65 of Public Works Notification No. 117 of 17th June 1856.

Subjects.	No. of Questions.	Value of each paper.	Total value of subject.
English Dictation.—Comprising.	.....	.....	75
Given passage to be read out by Examiner.			
Handwriting.	1	25	
Spelling...		30	
Punctuation.		20	
Latin.	.....	.....	250
Translate passage from Virgil not less than ten lines or similar portion from Cæsar	2	175	
Questions on Parsing, Grammar and Syntax	5	75	
French or Vernacular.—(Oordoo)	.....	.....	250
Telemachus, Charles XII, or Peter the Great, translate passages of similar extent to the above	2	175	
Questions...	5	75	
History.—Comprising	.....	.....	275
Greece and Rome	3	75	
England.....	4	100	
British India...	4	100	
Geography.....	7	150	150
Total.....	.....	.....	1,000

DETAIL OF EXAMINATION TESTS No. 2.

Probationary Assistant Engineers.

Para. 62 of Public Works Notification No. 117 of 17th June 1856.

Subjects.	No. of questions.	Value of each paper.	Total value of subject.
Mathematics.—Comprising	.....	.....	500
Arithmetic	10	75	
Algebra	7	75	
Geometry	7	125	
Plane Trigonometry	7	100	
Mensuration	7	125	
Mechanics.—Comprising Statics, Dynamics and Hydraulics	12	250	250
Civil Engineering.—Comprising	.....	.....	300
Materials and general construction	12	175	
Stability of structures and strength of materials	7	125	
Estimating	1	200	200
Designs.—Comprising	.....	.....	250
Dwelling	1	100	
Bridge (one with complete estimate)	1	150	
Surveying.—Comprising	.....	.....	300
1. Theodolite Circuit, 15 to 20 stations, average not less than 500 feet apart, interior, compass or plane Table: Plan to prescribed scale. Field Book in original, plot by angles and by traverses ...	1	75	
2. Plot from given Field Book	1	25	
3. Trigonometrical diagram with data for calculation	1	50	
4. Level Circuit similar extent to Survey, Plan, Section, original Field Book	1	50	
5. Plot from given Field Book	1	25	
6. Questions, including elements of practical Astronomy ...	7	75	
Drawing.—Comprising	.....	.....	200
1. Copy Architectural drawing on given scale	1	50	
2. Construct drawing and sections from prescribed data	1	50	
3. One other bonâ fide Architectural specimen	1	50	
4. Copy, reduced or enlarged, given topographical drawing ...	1	25	
5. One other bonâ fide topographical specimen	1	25	
Total.....	.....	.....	2,000

55

DETAIL OF EXAMINATION TESTS No. 3.

Sub Engineer.

Para. 57 of Public Works Notification No. 117 of 17th June 1856.

Subjects.	No. of questions.	Value of each paper.	Total value of subject.
Mathematics.—Comprising	.....	.....	425
Arithmetic	10	100	
Geometry (Practical and six books)	7	100	
Plane Trigonometry	7	100	
Mensuration....	7	125	
Mechanics.—Comprising Elementary Statics	7	125	125
Estimating	1	200	200
Civil Engineering.—Comprising.....	.....	.....	225
Materials and general construction	12	175	
Elements of stability of structure	3	50	
Design.—Comprising simple dwelling from data	1	125	125
Surveying.—Comprising	.....	.....	225
1. Theodolite Circuit 8 or 9 lines average length not less than 500 feet interior detail by compass or plane Table. Plan to prescribed scale with original Field Book	1	75	
2. Plot from given Field Book	1	25	
3. Level Circuit same extent. Plan and Section. Field Book	1	50	
4. Plot from given sheet of Levels..	1	25	
5. Questions	5	50	
Drawing.—Comprising	.....	.....	175
1. Copy Architectural drawing on given scale	1	50	
2. Construct an easy drawing from prescribed data	1	25	
3. One other bonâ fide Architectural specimen	1	25	
4. Copy reduced or enlarged, given topographical drawing ...	1	50	
5. One other bonâ fide topographical specimen	1	25	
Total.....	.....	.....	1,500

DETAIL OF EXAMINATION TESTS No. 4.

Probationary Assistant Overseer.

Paras. 40 and 47 of Public Works Notification No. 117 of 17th June 1850.

Subjects.	No. of questions.	Value of each paper.	Total value of subject.
Mathematics.—Comprising			275
Arithmetic	10	100	
Geometry	7	100	
Mensuration	7	100	
Book keeping.—(Accounts)	3	50	50
Civil Engineering.—Comprising			150
Simple construction	7	125	
Tracing simple building on level ground	1	25	
Estimating.—Comprising			125
Simple building (rates given)	1	125	
Small bridge	1		
Surveying.—Comprising			150
1. Circuit with Compass 8 or 9 sides average length not less than 300 feet, Plan to given scale, Field Book in original	1	125	
2. Plot from given Field Book	1	25	
3. Level Circuit of similar extent to compass Survey, Plan and Section	1	125	
4. Plot from given sheet of levels	1	25	
5. Questions	1	125	
Drawing.—Comprising	3		75-25
1. Copy simple drawing on given scale	1	25	
2. Construct scales	1	25	
3. One bonâ fide specimen	1	25	
Vernacular.—Comprising			75-25
Questions	7	10-15	
Report on Colloquial by Examiner	1	25-10	
English Dictation.—Comprising			25-25
Handwriting, Spelling, Punctuation	1	15-50	
Report on reading by Examiner	1	10-25	
Total			1,000

(True Copies.)

(Signed) W. E. BAKER, Colonel,

Secretary to the Government of India.

C. E. COLLEGE FORT WILLIAM.

Subjects of Examination of Candidates for admission.

1. ENGLISH LITERATURE.

Milton 1st and 2nd Books of Paradise Lost.
Dryden's Absalom and Achitophel.
Southey as much as is contained in Richardson's Selections.
The remaining portion of the Spectator i. e., from No. 266 to the end.

2. VERNACULAR LITERATURE.

In Bengalee..	or	In Oordoo.
Sakuntala.		Tata Kabanee.
Beital Punchobinshuttee.		Beital Pachceese.
Shama Churn's Bengalee Grammar.		

3. HISTORY.

The History of England (including that of British India) to 1815.
Elphinstone's History of India.

4. MATHEMATICS.

CONIC SECTIONS.

MECHANICS.

Composition and Resolution of Forces.
The Mechanical powers.
The Centre of Gravity. The general laws of motion.
The motion of falling bodies in free space and down inclined planes.

NATURAL PHILOSOPHY.

Hydraulics, pressure of liquids and gases, their equal diffusion and variation as the depth, specific gravity.
Description and explanation of the Barometer, Syphon, Common Pump, Forcing Pump, Air Pump and Steam Engine.

OPTICS.

Laws of Reflection and Refraction, Formation of images by simple Lenses.

No. 71. ORDER THEREON, No. 1815; dated 29th September 1857.

Ordered to be referred to the Principal of the Engineering College at Madras for consideration and report.

(Signed) H. FORBES,

Acting Secretary to Government.

No 3828

From

Colonel W. E. Baker

Secretary to the Govt. of India

To

H. Forbes Esqre,

Acting Secretary to the Govt. of

Fort Saint George

Dated the 31st July 1857

Pub. Works Dept.

Public

Sir

With reference to your Telegraph Message of the 27th April last, I have the honor to forward for the information of the Government of Fort Saint George, the examination tests for Certificates of Civil Engineering lately agreed upon by the Principals of the Civil Engineering Colleges of Roorkee and Calcutta, with the corresponding examinations for admission into the several grades of the Public Works Establishments under the direct control of the Government of India.

2. I am to remark that it is not proposed to prescribe these exact tests for imitation in the Madras College but

but they may be taken as examples of the conclusions come to here, after much experience and discussion. On the opinion of the Principal of the Calcutta College, the entrance examination of a student for the Engineer Class, should be so arranged as to call for about one half of the maximum theoretical requirements with the views of Mathematics and Mechanics required from a Candidate as a Probationary Assistant Engineer, in order to pass a successful examination. No knowledge of the other Technical subjects should be required, the rest of the examination being confined to Literature, History &c.

I have the honor to be,
Sir
Your most obedt. Servt.
W. Allen Clerk
Secretary to the Govt. of India

Fort William
The 31st July 1857

Dell

Syllabus of Examinations for admission

Subjects

Division

Proportion

Number of marks

Examiners

Mr. Bonnor
Mr. Tolmer
Babu Peary

Mr. Bonnor
Mr. Tolmer
Babu Peary

Mr. Bonnor
Mr. Tolmer
Babu Peary

Ps W 1875/57

General Scale of examination tests for the Civil Engineering Colleges and Department of Public Works under the Government of India.—

	Engineer Students Probationers	Establishment 1st & 2nd Class Assistant Engineers	Upper Subordinate Establishment Surveyors to Sub-Engineers	Lower Subordinate Establishment Surveyors	Roorkee College 1st Class Certificate	Roorkee College 2nd Class Certificate (Civil)	Lower Subordinate Establishment Overseers (Civil)	Subordinate Establishment Sub Overseers (Civil) I	Sub Overseers II	Sub Overseers III	Sikh Surveyors I	Sikh Surveyors II
Mathematics	600	300	600	1125	825	900	275	625	250	200	100	275	260
Mechanics	250	200		125		75		75					
Estimating	200	200		200		125	125	125	100	100			
Civil Engineering (Theory)	300	300		225		150	150	150	100	100	75		
" (Design)	250	250		125								200	160
Surveying	350	300	350	225	225	200	160	200	150			125	100
Drawing	250	200	200	175	150	200	150	250	100	100			
Book Keeping	100					50	50						
Geology	100												
Vernacular	100					875 (25)	75 (25)	25					
English						225 (75)	75 (75)	50	50	30	30		
Total	2500	2000	1150	1500	800	1200	1000	1200	750	550	225	600	450

N.B. One tenth of the marks allotted to each paper to be assigned for practical

Standard

For Certificate — of the total number of marks and — of the marks allotted to each subject

Honors { Great Credit — — 70
Highly distinguished — — 90

* Interchangeable according as Candidate be European or Native.—

Details of Examination Tests No. 1

General Education

Para. 65 of Public Works Notification No. 117 of 17 June 1856.

Subjects	No. of Questions	Value of each Paper	Total value of Subject
English Dictation			75
(Comprising)			
Given passage to be read out by Examiner			
Handwriting		25	
Spelling		30	
Punctuation		20	
Latin			250
Translate passage from Virgil not less than three lines of number for translation from Caesar	2	75	
Questions on Prosody, Grammar and Syntax	5	75	
French or Vernacular (Cordno)			250
Telemachus, Charles XII. or Peter the Great. Translate passages of similar extent to the above	2	175	
Questions	5	75	
History			375
Comprising			
Greece and Rome	3	75	
England	4	100	
British India	4	100	
Geography		150	150
Total			1000

Details of Examination Tests

Probationary Assistant Engineers.

Para. 62 of Public Notification No. 117 of 17 June 1856.

Subjects	No. of Questions	Value of each Paper	Total value of Subjects
			500.
Mathematics			
Comprising	10	75	
Arithmetic	7	75	
Algebra	7	125	
Geometry	7	100	
Plane Trigonometry	7	125	
Mensuration	7		
Mechanics comprising Statics, Dynamics and Hydrostatics	12	250	250.
			300.
Civil Engineering	12	175	
Comprising			
Materials and general construction	7	125	
Stability of Structures & Strength of Materials	1	200	200.
Estimating			250.
Designs	1	100	
Sketching	1	100	
Drawing Bridge (one with a complete Estimate)	1		200.
Surveying			
Comprising			
1 Theodolite Survey of 15 to 20 Stations Average not less than 500 ft apart to enclose Grass or Plane Table Survey to filling in Detail by Scale. Field book in original, plotted angles and by Traverse	1	75	
2 Plot from given field book	1	50	
3 Engineers Level Survey and Plot as Completed	1	50	
4 Civil Circumferentor Survey & Plot from original field book	1	25	
(Comparison)			
5 Plot from given field book	1	75	
6 Questions, including elements of Practical Astronomy	7		200.
Drawing — Comprising			
1 Copy Architectural Drawing on given scale	1	50	
2 Construct Drawing of Columns from given data	1	25	
3 Copy Outline from Architectural Plan	1	50	
4 Copy, reduced or enlarged, a Topographical Drawing	1	25	
5 One other Drawing from Topographical Specimen	1		
Total			2000

Detail of Examination Tests No. 20

Sub Engineer

Para 57 of P.W. Notification No 117 of 17 June 1836.

Subjects	No of Questions	Value of each Paper	Total Value of Subject
Mathematics			425
Comprising			
Arithmetic	10	100	
Geometry (Practical & the Books)	1	100	
Plane Trigonometry	1	100	
Mensuration	1	125	
Mechanics comprising Elementary Statics	1	125	125.
Estimating	1	200	200.
Civil Engineering			225
Comprising			
Materials and general Construction	12	175	
Elements of Stability of Structures	3	50	
Drawing comprising simple dwelling from detail	1	125	125
Surveying			225
Comprising			
1. Theodolite Traverse 8 or 9 lines average length not less than 600 ft. returning to starting point by Compass or plane table Plan to prescribed scale with angles & distances	1	75	
2. Plot from given field book	1	25	
3. Level Circuit of Structure Plan & Section - Field book	1	50	
4. Plot from given sheet of Levels	1	25	
5. Questions	5	50	
Drawing			175
1. Copy Architectural Drawing to scale	1	50	
2. Construct with easy drawing from dictation	1	25	
3. One other bona fide Architectural specimen	1	25	
4. Copy reduced or enlarged given topographical drawing	1	50	
5. One other bona fide topographical specimen	1	25	
Total			1500

Detail of Examination Tests No 11

Probationary Assistant Overseer

Paras 110 & 117 of P.W. Notification No 117 of 17 June 1836.

Subjects	No of Questions	Value of each Paper	Total value of Subject
Mathematics			275
Comprising			
Arithmetic	10	100	
Arithmetic	1	75	
Geometry	1	100	
Mensuration	1	50	
Book Keeping (Accounts)	1	50	50
Civil Engineering			150
Comprising			
Simple construction	1	125	
Tracing simple building on level ground	1	25	
Estimating			125
Comprising			
Simple Building (rise given)	1	125	
Small Bridge	1		
Surveying			150
Comprising			
1 Circuit under Compass 8 or 9 sides average length not less than 400 ft. returning to starting point Field Book in prescribed form	1	50	
2. Plot from given Field Book	1	25	
3. Level Circuit of similar extent to	1	50	
Copy of Survey - Plan and Section	1	50	
4. Plot from given sheet of Levels	1	25	
5. Questions			
Drawing			
Comprising			
1 Copy simple drawing on given scale	1	90	
1 Copy simple drawing on given scale	1	30	
2. Construct scale	1	90	
3. One bona fide specimen			75-25
Ordinary Duties			
Comprising			
Questions	1	50-15	
Questions	1	25-10	
Report on Estimate by Examiner			25-75
English Dictation			
Comprising Punctuation	1	15-50	
Handwriting, Spelling,	1	10-25	
Report on Reading by Examiner			
(Two Copies)			
Total			1000.

Lt Col Allen Colonel
Secretary to the Govt of India

Com 12 Aug 1857 No 5496

Public Works 1857 Department
Com 29th September
No 1675

From the Secretary to the
Government of India

Dated 31st July
Rec'd 7th Aug't } 1857

Ft W.H 2 enclos

Forwarding the examination lists for Certificates of Civil Engineering Ability granted by the Principals of the Civil Engineering Colleges of Chandree & Calcutta, with the Correspondence noted in the margin for the adjustment with the Home Establishment under the General Control of the Govt of India.
No 1845 With a view to [illegible]

No 70 & 71.

Com Dg Aug 9

1857
Fort St George
29th October 1857

Sent to the Secy of the Civil College at Madras. Circ No 50

Com Dg Nov 6 Sec Con 5 76
11 Feby 58 — 54 — 66

1857
Ordered to be referred to the Principal of the Engineering College at Madras for consideration and report.