

ਦਫਤਰ ਡਿਪਟੀ ਡਾਇਰੈਕਟਰ (ਪ੍ਰਸ਼ਾਸਨ)
ਜਲ ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਵਿਭਾਗ,
ਨਾਭਾ ਰੋਡ, ਪਟਿਆਲਾ।

ਵਿਖੇ

ਨਿਗਰਾਨ ਇੰਜੀਨੀਅਰ,
ਜਲ ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਹਲਕਾ,
ਲੁਧਿਆਣਾ।

ਨੰ: ਮਿਤੀ:

ਵਿਸ਼ਾ :- ਰੈਗੂਲਰ ਫੀਲਡ ਵਰਕਰ (ਗਰੁੱਪ-ਸੀ) ਤੇ ਜੂਨੀਅਰ ਇੰਜੀਨੀਅਰ (ਗਰੁੱਪ-ਬੀ) ਦੀ ਪੱਦਉਨਤੀ ਕਰਨ ਸਬੰਧੀ ਸਿਲੇਬਸ ਜਾਰੀ ਕਰਨ ਸਬੰਧੀ।

ਵਿਸ਼ਾ ਅੰਕਿਤ ਮਾਮਲੇ ਸਬੰਧੀ ਲਿਖਿਆ ਜਾਂਦਾ ਹੈ ਕਿ ਕਿ ਰੈਗੂਲਰ ਫੀਲਡ ਵਰਕਰ (ਗਰੁੱਪ-ਸੀ) ਤੇ ਜੂਨੀਅਰ ਇੰਜੀਨੀਅਰ (ਗਰੁੱਪ-ਬੀ) ਦੀ ਪੱਦਉਨਤੀ ਕਰਨ ਸਬੰਧੀ ਲਈ ਜਾਣ ਵਾਲੀ ਵਿਭਾਗੀ ਪ੍ਰੀਖਿਆ ਦੇ ਸਬੰਧ ਆਪ ਵਲੋਂ ਭੇਜੇ ਗਏ ਸਿਲੇਬਸ ਨੂੰ ਸਮਰੱਥ ਅਧਿਕਾਰੀਆਂ ਵਲੋਂ ਪ੍ਰਵਾਨ ਕੀਤਾ ਜਾਂਦਾ ਹੈ। ਇਸ ਸਬੰਧੀ ਵਿਭਾਗ ਦੇ ਸਮੂਹ ਕਰਮਚਾਰੀਆਂ/ ਅਧਿਕਾਰੀਆਂ ਨੂੰ ਤੁਰੰਤ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇ।

ਨੱਥੀ/ਸਿਲੇਬਸ

ਸ/1

ਸੁਪਰਡੈਂਟ ਗ੍ਰੇਡ-1 (ਪ੍ਰਸ਼ਾਸਨ)

ਪਿੱਠ ਅੰਕਣ ਨੰ:

ਮਿਤੀ:

ਉਪਰੋਕਤ ਦੀ ਨਕਲ ਮਾਨਯੋਗ ਵਿਭਾਗੀ ਮੁੱਖੀ, ਜਸਸ ਵਿਭਾਗ, ਮੋਹਾਲੀ ਸੂਚਨਾ ਹਿੱਤ ਭੇਜੀ ਜਾਂਦੀ ਹੈ।

ਸ/1

ਸੁਪਰਡੈਂਟ ਗ੍ਰੇਡ-1 (ਪ੍ਰਸ਼ਾਸਨ)

ਪਿੱਠ ਅੰਕਣ ਨੰ: 1367-1370

ਮਿਤੀ: 13-04-2023

ਉਪਰੋਕਤ ਦੀ ਨਕਲ ਹੇਠ ਲਿਖਿਆ ਨੂੰ ਸੂਚਨਾ ਅਤੇ ਅਗਲੀ ਲੋੜੀਂਦੀ ਕਾਰਵਾਈ ਹਿੱਤ ਭੇਜੀ ਜਾਂਦੀ ਹੈ:-

- 1) ਮੁੱਖ ਇੰਜੀਨੀਅਰ (ਦੱਖਣ/ਸੈਂਟਰਲ/ਉੱਤਰ/ਪੀ.ਡੀ.ਕਿਊ.ਏ.), ਜਸਸ ਵਿਭਾਗ, ਪਟਿਆਲਾ/ ਮੋਹਾਲੀ।
- 2) ਸਮੂਹ ਨਿਗਰਾਨ ਇੰਜੀਨੀਅਰ, ਜਸਸ ਵਿਭਾਗ, ਪੰਜਾਬ ਨੂੰ ਭੇਜਦੇ ਹੋਏ ਬੇਨਤੀ ਕੀਤੀ ਜਾਂਦੀ ਹੈ ਕਿ ਸਬੰਧਤਾਂ ਨੂੰ ਵਿਸ਼ੇ ਸਬੰਧੀ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇ।
- 3) ਸਮੂਹ ਕਾਰਜਕਾਰੀ ਇੰਜੀਨੀਅਰ ਇੰਜੀਨੀਅਰ, ਜਸਸ ਵਿਭਾਗ, ਪੰਜਾਬ।
- 4) ਕਾਰਜਕਾਰੀ ਇੰਜੀਨੀਅਰ (ਐਮ.ਆਈ.ਐਸ.), ਜਸਸ ਵਿਭਾਗ, ਮੋਹਾਲੀ ਨੂੰ ਭੇਜਦੇ ਹੋਏ ਬੇਨਤੀ ਕੀਤੀ ਜਾਂਦੀ ਹੈ ਕਿ ਸਿਲੇਬਸ ਨੂੰ ਵਿਭਾਗ ਦੀ ਵੈਬ-ਸਾਈਟ ਤੇ ਅਪਲੋਡ ਕੀਤਾ ਜਾਵੇ।

ਨੱਥੀ/ਸਿਲੇਬਸ

ਸ/1
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ਸੁਪਰਡੈਂਟ ਗ੍ਰੇਡ-1 (ਪ੍ਰਸ਼ਾਸਨ)
R

Fwd: Reg. Proceedings of Meeting for vetting of syllabus for conducting Departmental examination for Group-C (Regular work charged) to junior Engineer (Group-B) under Services Rules, 2021 held on 27-03-2023 under the chairmanship of Er. J.J. Goel, Chief Engineer (South) at Head Office, Patiala.

From: Chief Engineer PDQA (cepddwss@gmail.com)

To: ce_south@yahoo.com

Date: Thursday, 13 April, 2023 at 01:59 pm IST

PFA - Signed Copy

----- Forwarded message -----

From: **Chief Engineer (South)** <ce_south@yahoo.com>

Date: Thu, Apr 13, 2023 at 12:51 PM

Subject: Reg. Proceedings of Meeting for vetting of syllabus for conducting Departmental examination for Group-C (Regular work charged) to junior Engineer (Group-B) under Services Rules, 2021 held on 27-03-2023 under the chairmanship of Er. J.J. Goel, Chief Engineer (South) at Head Office, Patiala.

To: Chief Engineer PDQA <cepddwss@gmail.com>

Rgds

CE (South)
DWSS, Punjab
Patiala
0175-2212029



Service Rules.pdf
5.8MB

Service Rules 2021 of Junior Engineer (Group B) of Punjab Water Supply and Sanitation Department have been notified vide Punjab Govt. letter No. 1/5/2021-512/528 dated 28.06.2021. Rules and procedures in this regard to the Departmental Examination as under:

1) Rules :-

a) Clause 7 (Qualifying examination for appointment for appointment by promotion) of Punjab Water Supply and Sanitation, Junior Engineer (Group B) Service Rules 2021:-

i) The department shall conduct a qualifying examination every year for preparing a list of candidates to be considered for promotion to the post of Junior Engineer in the Service from amongst the category of employees specified in clause (i) under column 6 of Appendix 'B'.

ii) The department shall specify the syllabus for the qualifying examination and shall appoint a Committee of Examiners for conduction the qualifying examination.

iii) The department shall prepare a list of successful candidates for the purpose of considering them for promotion in accordance with these rules.

b) Clause (i) under column 6 of Appendix 'B' :-

Six percent from amongst the Junior Technicians working in the department, who are Matriculates or possess equivalent qualification possess certificate of Civil or Mechanical or Electrical Engineering from an Industrial Training Institute and have an experience of working for a minimum period of ten years, and who qualify the departmental examination as specified in rule 7.

2) Procedures:-

a) Application for admission to the Examination:-

An employee who desires to be examined shall apply through his immediate superior for admission the examination. His application should be accompanied by a report on his fitness to be examined, by the Divisional Officer under whom he is serving. This report should deal with those points which cannot be tested by an examination, especially with regard to physical energy, efficiency in practical work and capacity to manage those under his authority.

b) Date of holding the examination:-

The Examination will ordinarily be held in May and applications should be submitted in April, respective so that when possible, the date of Examination may be fixed six weeks prior to the date on which it will be held.

C) Conduct of Examination:-

i) The HOD, Water Supply and Sanitation Department, will appointed a committee every year to conduct the Examination, consisting of the Superintending Engineer as President and two Executive Engineers as Members.

ii) The Departmental Examination be conducted through a reputed Engineering College/ Institution under the Supervision of Deputy Director (Admin), Department of Water Supply & Sanitation.

iii) This committee will fix the place, date and time of examination.

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iv) After conducting the Examination by the committee, the result of the examination will be handed over to the Deputy Director (Admin.), Water Supply & Sanitation Department Patiala.

D) Subjects for examination:-

One paper will be set in each of the following subjects to which the maximum marks shown against each, will allotted:-

i) Civil

Sr. No.	Name of Subject	Total time of Exam	Written or Oral	Total Marks	Syllabus attached on Annexure
1	Water Supply & Sanitation, Sewerage, Sanitary installation and activities under Swachh Bharat Mission.	3 hours	Written	100	annexure-I
2	Building Material and Construction	2 hours	Written	50	annexure-II
3	Revenue Policy of Department, Importance of Social activities, Constitution of Sections for J.E., M-Gram Sewa App and JalSewa App.	2 hours	Written	50	annexure-III
4	Accounts related to Billing and Measurement Book.	2 hours	Written	50	annexure-IV
5	VIVA	1 hours	Oral	20	annexure-V
			Grand Total	270	

ii) Mechanical

Sr. No.	Name of Subject	Total time of Exam	Written or Oral	Total Marks	Syllabus attached on Annexure
1	Mechanical and Electrical Engineering	3 hours	Written	100	annexure-VI
2	Public Health Engineering	2 hours	Written	50	annexure-VII
3	Revenue Policy of Department, Importance of Social activities, Constitution of Sections for J.E., M-Gram Sewa App and JalSewa App.	2 hours	Written	50	annexure-VIII
4	Accounts related to Billing and Measurement Book.	2 hours	Written	50	annexure-IX
5	VIVA	1 hours	Oral	20	annexure-X
			Grand Total	270	

Note:- Candidates must have passed Punjabi at Matriculation (10th Standard) level or equivalent from recognized board/ Language Department.

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e) Numbers required to pass the examination:-

In order to pass, a candidate must obtain not less than 50% marks in each subject and an aggregate of not less than 60% of the total marks in all subjects. A candidate, who fails in only one subject but obtains not less than 60% of the total for the other subjects, may be permitted to appear again in the subject in which he fails. In such cases he must obtain not less than 60% in that subject in order to pass.

f) Detail for conduct of the examination:-

i) The answer sheets will be given to each candidate by the examiner.

ii) Each candidate should bring his own blue/black pen, pencil, scale, compass, eraser, sharpener etc.

iii) The answers to the question must be written as to leave one quarter margin on which the examiners will accord their marks against each question.

iv) The use of calculator shall be allowed but mobile phone, Bluetooth device and headphone will not be permitted inside the Examination Hall.

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3) Application form

ਜੂਨੀਅਰ ਇੰਜੀਨੀਅਰ(ਗਰੁੱਪ-ਬੀ) ਸਰਵਿਸ ਰੂਲ, 2021 ਦੀ ਕਲਾਜ 7(i)ਅਨੁਸਾਰ ਵਿਭਾਗੀ ਪ੍ਰੀਖਿਆ ਲੈਣ ਸਬੰਧੀ

1	ਪ੍ਰੀਖਿਆਰਥੀ ਦਾ ਨਾਮ		ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਤਸਦੀਕਸ਼ੁਦਾ ਫੋਟੋ
2	ਪਿਤਾ ਦਾ ਨਾਮ		
3	ਅਹੁਦਾ		
4	ਵਿਭਾਗ ਵਿੱਚ ਆਉਣ ਦੀ ਮਿਤੀ		
5	ਲੜੀਨੰ: 3 ਅਨੁਸਾਰ ਤਰੇ ਗਏ ਅਹੁਦੇ ਤੇ ਰੈਗੂਲਰ ਨਿਯੁਕਤੀ ਦੀ ਮਿਤੀ		
6	ਲੜੀਨੰ: 3 ਅਨੁਸਾਰ ਤਰੇ ਗਏ ਅਹੁਦੇ ਤੇ ਰੈਗੂਲਰ ਸਰਵਿਸ ਕਿੰਨੀ ਹੋ ਚੁੱਕੀ ਹੈ		
7	ਉਪ ਮੰਡਲ ਅਤੇ ਮੰਡਲ ਦਫਤਰ ਦਾਨਾਮ		
8	ਸੀਨੀਅਰਤਾ ਨੰਬਰ		
9	ਐਚ.ਆਰ.ਐਮ.ਐਸ. ਕੋਡ		
10	ਬੇਸਕ ਕੁਆਲੀਫਿਕੇਸ਼ਨ (ਤਸਦੀਕ ਸ਼ੁਦਾ ਸਰਟੀਫਿਕੇਟ ਨੱਥੀਕਰੋ)		
11	10ਵੀ ਪੱਧਰ ਤੇ ਪੰਜਾਬੀ ਪਾਸ (ਹਾਂ/ਨਾਂ)		
12	ਟੈਕਨੀਕਲ ਕੁਆਲੀਫਿਕੇਸ਼ਨ (ਤਸਦੀਕਸ਼ੁਦਾ ਸਰਟੀਫਿਕੇਟ ਨੱਥੀ ਕਰੋ)		
13	ਕੈਟਾਗਰੀ (ਸਿਵਲ ਜਾਂ ਮਕੈਨੀਕਲ)		
14	ਐਪਲੀਕੇਸ਼ਨ ਦੇਣ ਦੀ ਮਿਤੀ		
15	ਪ੍ਰੀਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ		

ਕਾਰਜਕਾਰੀ ਇੰਜੀਨੀਅਰ, ਜਿਸ ਅਧੀਨ ਪ੍ਰੀਖਿਆਰਥੀ ਕੰਮ ਕਰਦਾ ਹੈ ਵੱਲੋਂ ਦਿੱਤਾ ਜਾਣ ਸਰਟੀਫਿਕੇਟ

1	ਫਿਜੀਕਲ ਐਨਰਜੀ ਟੂ ਕੋਪ ਵਿਦ ਦਾ ਵਰਕ	
2	ਐਂਟੀਸੈਸੀ ਇੰਨ ਪ੍ਰੈਕਟੀਕਲ ਵਰਕ	
3	ਕਪੈਸਟੀ ਟੂ ਮੈਨੇਜ ਦਾ ਸਬੋਰਡੀਨੇਟ	
4	ਤਸਦੀਕ ਕੀਤਾ ਜਾਂਦਾ ਹੈ ਕਿ ਪ੍ਰੀਖਿਆਰਥੀ ਵੱਲੋਂ ਭਰੀ ਗਈ ਉਕਤ ਸੂਚਨਾ (1 ਤੋਂ 13 ਤੱਕ) ਅਸਲ ਰਿਕਾਰਡ ਨਾਲ ਮੇਲ ਖਾਂਦੀ ਹੈ ਅਤੇ ਇਹ ਪ੍ਰੀਖਿਆਰਥੀ ਜੂਨੀਅਰ ਇੰਜੀਨੀਅਰ (ਗਰੁੱਪ-ਬੀ) ਸਰਵਿਸ ਰੂਲ, 2021 ਦੀ ਕਲਾਜ 7 ਅਨੁਸਾਰ ਵਿਭਾਗੀ ਪ੍ਰੀਖਿਆ ਦੇਣ ਦੇ ਯੋਗ ਹੈ।	

ਕਾਰਜਕਾਰੀ ਇੰਜੀਨੀਅਰ

ਜਲ ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਮੰਡਲ

ਅਗਜ਼ਾਮੀਨਰ ਦੀ ਵਰਤੋਂ ਲਈ

- 1) ਅਰਜੀ ਪ੍ਰਾਪਤ ਕਰਨ ਦੀ ਮਿਤੀ:-----
- 2) ਚੇਅਰਮੈਨ ਦੇ ਹੁਕਮ:-----
- 3) ਪ੍ਰੀਖਿਆਰਥੀ ਨੂੰ ਉਸਦੇ ਦਫਤਰ ਦੇ ਮੁੱਖੀ ਰਾਹੀਂ ਐਪਲੀਕੇਸ਼ਨ ਪ੍ਰਾਪਤ ਹੋਣ ਸਬੰਧੀ ਸੂਚਨਾ ਪੱਤਰ ਨੰ:-----ਮਿਤੀ
----- ਰਾਹੀਂ ਭੇਜੀ ਗਈ।
- 4) ਅਲਾਟ ਕੀਤਾ ਗਿਆ ਰੋਲ ਨੰ:-----







ਪ੍ਰੀਖਿਆ ਪ੍ਰਵੇਸ਼ ਸਲਿੱਪ
ਜੂਨੀਅਰ ਇੰਜੀਨੀਅਰ(ਗਰੁੱਪ-ਬੀ) ਸਰਵਿਸ ਰੂਲ, 2021 ਦੀ ਕਲਾਜ 7(i) ਅਨੁਸਾਰ ਵਿਭਾਗੀ ਪ੍ਰੀਖਿਆ
ਜਲ ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਵਿਭਾਗ ਪਟਿਆਲਾ

ਰੋਲ ਨੰਬਰ-----

(ਵਿਭਾਗੀ ਕਮੇਟੀ ਵੱਲੋਂ ਜਾਰੀ ਕੀਤਾ ਜਾਵੇਗਾ)

1	ਪ੍ਰੀਖਿਆਰਥੀ ਦਾ ਨਾਮ	
2	ਪਿਤਾ ਦਾ ਨਾਮ	
3	ਕੈਟਾਗਿਰੀ (ਸਿਵਲ ਜਾਂ ਮਕੈਨੀਕਲ)	
4	ਅਹੁਦਾ	
5	ਉਪ ਮੰਡਲ ਦਫਤਰ ਦਾ ਨਾਮ	
6	ਮੰਡਲ ਦਫਤਰ ਦਾ ਨਾਮ	
7	ਮੋਬਾਇਲ ਨੰਬਰ	
8	ਸੀਨੀਅਰਤਾ ਨੰਬਰ	
9	ਪ੍ਰੀਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ	

<p>ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਤਸਦੀਕਸ਼ੁਦਾ ਫੋਟੋ</p>

ਚੇਅਰਮੈਨ
 ਵਿਭਾਗੀ ਪ੍ਰੀਖਿਆ-ਕਮ-
 ਨਿਗਰਾਨ ਇੰਜੀਨੀਅਰ
 ਜਲ ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਹਲਕਾ





Syllabus

i) Civil Category

(Annexure-I)

WATER SUPPLY & SANITATION SEWERAGE, SANITARY INSTALLATIONS AND ACTIVITIES UNDER
SWACH BHARAT MISSION (Maximum 100 Marks)

A) Water Supply

i) Introduction

Necessity and brief description of Water Supply Schemes, Hydrostatic pressure, Intensity of pressure, pressure head, Measurement of pressure- Atmospheric pressure, gauge pressure and absolute pressure.

ii) Estimation of Water requirement

Population forecast, per capita consumption of water for domestic, industrial, irrigation, fire fighting and other users.

iii) Sources of Water Supply

Various sources of water Supply, method of construction of open wells and drilling of tubewells, development of tubewells, yield of open wells and tubewell circle of influence, Draw down, characteristics of underground strata, types of strainers, Detail of tubewell assembly, verticality of tubewell and its significance, measurement of discharge by weirs, different types of pumps used in water supply, types of motors uses, stand bye arrangements for pumping machinery viz, diesel oil engines and generating sets, types of engines and their classification, knowledge of parts of engines, motors & pumps, canal outlet and inlet channel.

iv) Treatment of Water Supply:

Various types of impurities in water, collection of water samples for physical, chemical and bacteriological analysis of water, water borne diseases necessity of water treatment, methods of water treatment sedimentation, coagulation, rapid sand filters, slow sand filters, disinfection, growth of Algae and its control, water quality standards.

v) Distribution System:-

Various methods of water distribution, continuous and intermittent water supply, service reservoirs-underground and overhead pressure in pipes, head loss and terminal head various types of pipes used in water supply system-cast-iron, steel, asbestos, cement, concrete, P.V.C. H.D.P.E.G.I. pipes etc. Pipes specials, valves and fitting laying jointing & testing of pipe lines metering of water, leakage detection & prevention, water hammer, Air valve, pressure relief valve, surge tank.

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vi) Building Water Supply:-

Tapping of water main laying of pipes under floors and along walls, maintenance of pipes and leakage prevention.

B) SEWERAGE

Necessity of systematic collection and disposal of waste, quantity of sewage, types of sewers, material used in Sewers, laying, jointing and testing of sewers, spring level, its effect on sewer, laying of sewers under spring level, choice and life of sewer. Location, function and construction of man-holes, ventilating shafts, storm water sewers, road gullies, treatment of Sewage, various units of sewage treatment plant, septic tank, disposal of sewage, various types of sewage pumps.

C) SANITARY INSTALLATIONS:

General layout of sanitary fittings and house drainage arrangement for building (Single and Multi Storied) different sanitary fitting and their installation, trapes & Water seal, various types of traps, floor traps, gully trap, Inspection chambers, intercepting traps and grease traps etc. method of testing of sanitary installation systems.

D) RURAL SANITATION

Individual House Hold Latrines (IHHL), Community Service Complex, Grey Water Management, Solid Waste Management, Plastic Waste Management and Liquid Waste Management, Surface drains, brick pavements, Construction of pour flush, water seal latrines and material used therefore, Leach pits- construction & their utility. Soakage pits-construction & utility, Construction of community lavatory blocks.

E) AIR CONDITIONING

Definitions of common terms, temperature, humidity, Air Conditioning systems, basic components, erections and operation.

F) DESIGN STANDARDS

General instructions and design standards of Punjab PWD, Department of Water Supply & Sanitation, Sewerage, Sanitary installation and activities under Swachh Bharat Mission. Knowledge of various standards as given in manual on water supply & treatment and manual on Sewerage & Sewerage treatment.

(Annexure-II)

(Maximum 50 Marks)

BUILDING MATERIAL AND CONSTRUCTION

1) Building Material

i) Cement

Cement, types of cement, properties and uses of ordinary portland cement, storing of cement in stores and at site, effect of storage on strength of cement, initial & final setting of cement.

ii) Fine Aggregates

Specifications of sand and surkhi used for masonry & concrete work.

iii) Coarse Aggregates

Specifications and grading of coarse aggregates such as gravel and shingle.

iv) Bricks & Tiles

Classifications of bricks, specifications for 1st Class, 2nd Class and third class bricks, pilla and jhama bricks building tiles their properties and uses.

v) Stone

Specifications of stones uses in building constructions.

vi) Timber

Difference type of timber and their specifications, preservation of timber identification of timber i.e. Teak, Sal, Kail, Deodar etc.

vii) Metals

Ferrous metals- composition, properties and uses of cast Iron, types of steel, specifications of steel used in building construction. Advantage of Tor-Steel over M.S. round bars, Non Ferrous metals-properties and uses of the following Non-Ferrous metals in Civil Engineering works, copper, lead zinc, Tin and Aluminium.

viii) Lime

Properties and uses of lime, specifications of lime used in building constructions.

ix) Paints & Varnishes:

Purpose and uses of paints, different types of paints- oil paints, water paints and cement paints, white washing and distemping materials used and properties varnish and polish type properties and uses. Lacquers & Enamels- their properties and uses.

x) Misc Materials

- a) Plastics: Important Commercial products of plastics used in Civil Engineering works.
- b) Asbestos products.

2) Building Constructions, Tubewell Construction and OHSR Construction.

i) Foundation

Types of foundations, different methods of testing of soil bearing capacity, simple calculations for foundations. Spring level & its consideration for choosing right type of foundation.

ii) Bricks & Stone Masonry

Definition of terms used in masonry work, type of bonds and their suitability, construction of wells, specifications of 1st Class bricks, mortars-preparation, use and strength of cement, sand lime surkhi and mud mortars, types and uses of scaffolding.

iii) Cement Concrete

Mixing, laying curing & testing of concrete, bending, binding and laying of steel reinforcement, D.P.C. its use different types of D.P.C. cement concrete lintels slabs.

iv) Roofs

Different types of roofs, specifications for 1st class and second class roofing, mud roofing R.C.C. roofing, Tile terracing, Drainage arrangement for roofs. A.C. sheet roofing shuttering, types of shuttering & uses. Form-work-material used for form work, precaution to be taken before and after use. Sketches of form work for columns beams etc.

v) Surface finishes

Plastering, mortars used for different plasters, technique of plastering and curing.

Painting:- different types of painting, method of painting white washing colour washing and distempering

Painting:- preparation and applications of paints on wooden, steel and plastered surfaces.

vi) Flooring:

Types of floors, specifications for conglomerate flooring terazzo and brick pavements.

vii) Doors and windows

Various types of doors- battened, panelled glazed and flush doors specifications for doors frames and leafs, window and ventilators wooden and steel doors and windows.

viii) Lintels:-

R.B. & R.C.C Lintels.

ix) Stairs:-

Definition & description of landing tread, Riser Nosing, Hand rail, relation between rise and tread, straight spiral stairs.

x) Maintenance of Building & Civil Structures:-

White & Colour washing, Distempering, painting & spirit polishing replacement of glass panes, Re-polishing of terrazzo & mossari flooring, repairs to damaged plastered surface and damaged floors, repairs of leaking roofs, repair of cracks to masonry walls.

Revenue Policy of Department, Importance of Social Activities, Constitution of sections for J.E. M-Gram Sewa app and Jal Sewa App
(Maximum 50 Marks)

1) REVENUE POLICY OF DEPARTMENT :-

Water Supply Connections, Tariffs and Penalties, Types of Connections, Monthly Tariffs for various types of Connections, Domestic Connection, Commercial Establishments, Billing frequency and due date, All types of Penalties, Surcharge and Interest on non payment bills by due date, Surcharge of Non Payment of Current bill, Fee for connection of disconnected connection and collection of overdue charges/ recovery, Water Wastage Charges, Institutional arrangement for Revenue Collection and Eligibility conditions for Revenue Collectors, Payment of Incentive for collection of Revenue and other penalties, Dispute Redressed Mechanism and Appellate Authorities, One Time Measures of streamline the revenue collection, All the details regarding Revenue Collection Strategy (RCS), Shikayat Nivaran Kendar and redressal period of different types of Shikayats.




2) Importance of Social Activities

- 1) Constitution and Composition of GPWSC
- 2) MOU and Resolutions.
- 3) Office bearers of GPWSC and Tenure of Membership
- 4) Collection of Beneficiary Share
- 5) Testing of water samples through Laboratories and FTKs.

3) Constitution of Sections for J.E.

- 1) Regarding J.E.s Sections, Operation and Maintenance of J.E. Sections, Approximate coverage of villages, Constitution and Composition of J.E. Sections, Head of Section, Number of Sections, Function of Sections and Benefits of Sections.
- 2) Disinfection of water.

4) JAL SEWA App.

- 1) Baseline Data Updation
 - 2) Asset Tagging
 - 3) QR codes Scanning
 - 4) Regarding Monthly Reporting
 - 5) General, Financial, Technical, Institutional and Water Quality Testing
 - 6) Entries regarding arrear of revenue and testing of Chlorinators on Jal Sewa app.
 - 7) Benefits of Jal Sewa App.
 - 8) Functioning of Jal Sewa App.
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5) M-Gram Sewa App.

- 1) Data Collection and Updation
- 2) Entries Regarding Arrear of Consumer on M-Gram Sewa App
- 3) Regarding Bill Generation Receipt and Payments
- 4) Benefits of M-Gram Sewa App
- 5) Functioning of M-Gram Sewa App

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Accounts related of Billing and Measurement Book

(Maximum 50 Marks)

(i) Measurement of work

Responsibility of J.E. in measurement of work, Measurement Books-their uses, writing of M.B, common mistakes in writing M.B.'s and their rectifications, loss of M.B.'s recording of M.B.'s etc.

(ii) Execution of work

Various methods of execution works, allotment of works, tender and quotations, work orders and agreement, lumpsum contracts, deposit of security and earnest money, employment of work charged establishment, preparation of acquaintance rolls, preparations of T.A. bills, site order book.

(iii) Payment

Payments of bills of contractors and suppliers, payment of work charged establishment, payment of secured advance to contractor. Permanent & temporary imprest, purpose of imprest, issue & closing of imprest, preparation of imprest account, maintenance of imprest account, payment against hand receipts.

(iv) Issue & Receipt of Material

Stock Account, Register of stock, bin cards, M.A.S. accounts T&P accounts, survey report, stock returns, Indent Books and their use, physical verification of store, issue rates and storage charges.

(v) Duties of Junior Engineer

Duties of junior Engineer as provided in the manual of orders.



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(Annexure-V)

(Maximum 20 Marks)

VIVA

Topics

1. Water Supply
2. Sewerage
3. Sanitation



ii) Mechanical Category

(Annexure-VI)

MECHANICAL AND ELECTRICAL ENGINEERING

(Maximum 100 Marks)

MACHINERY:

Maintenance, operation and functioning of internal combustion engines, Gear heads, Necessity, functions choice of type and their maintenance coupling arrangement i.e. flexible, flanged, spline couplings, Different ways and means of power transmission i.e. gear transmission, belt (V & flat)/ transmission and their choice criteria.

Foundations:-

Lay out of machinery foundations including base plates foundation bolts and material used. Points to be taken care of in laying foundation.

Drilling rigs and compressors, Methods of drilling with direct reverse rotary and percussion rigs. Gravel packing, checking verticality of tubewell development of source with compressor and pumping machinery. Discharge measurements and collection of samples.

Maintenance schedule of transport vehicle, Periodical checking of various systems/components at required intervals. Proper up keep of jeeps, cars, trucks and tractors etc.

Pumping machinery -

Types and choice of pumping machinery, operation and maintenance. Identification, location and removal of various defects and repairs of pumping sets, to work out Horse Power of electric motors.

Electrical :

Types of electric motors, choice of their Suitability Generator, principle operation and maintenance.

Conductors:

Classification and choice of cables and conductors, choice of system i.e. overhead versus underground. Materials used for conductors, their merits and demerits and choice.

Protection and switch Gear : Fuse function, type of rewirable cartridge, H.R.C fuse. Relay function, type of relays and setting of relays, Difference between switch and circuit breaker. Types of starters, main switches, their suitability and choice criteria and maintenance, purpose and choice of ampere meter and volt meter. Power factor, ways and means for its improvement, purpose and importance of earthing and systems adopted.

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PUBLIC HEALTH ENGINEERING

(Maximum 50 Marks)

WATER SUPPLY:-

Wells-Definition, Classification, Characteristic of aquifer, percussion drilling, rotary drilling, Details of tubewell construction, Strata charts, significance of verticality. Well tests and well interference. Suitability of source with respect to quality and quantity. Brass and M.S. Strainers, Disinfection of water slow sand filters, Rapid sand filters, Discharge measurement.

PIPES:-

Materials i.e. C.I.W.I.A.C,P.V.C-etc. steel pipes, pipe joints, poured joints, spigot and socket joints, flanged joints, mechanical joints, special joints, screwed joints. Pipe testing, corrosion and its prevention.

PUMPS:

Classification according to class of service mechanical principles of operation, displacement pumps, centrifugal pumps, advantages and disadvantages. Pump operation, Air lift pumps, submersible pumps and vertical turbine pump, their efficiencies and selection of type of pumps

Appurtenances:

Sluice valves, check valves, air valves expansion joints, hydraulic and venturi meters, various types of chlorinators etc.

SEWERAGE:

Types of Sewers, Components and operation & maintenance of disposal works. Necessity of pumping sewage, pump classifications centrifugal pumps. Non clog^t sewage pumps, pumping station location, component parts, mechanical reaction and appurtenances thereof. Treatment-basic principals.

AIR CONDITIONING:-

Definitions of common terms, temperature, humidity, Air conditioning systems, basic components, erection and operation.

SANITARY ENGG:

Plumbing and sanitary fixtures.

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Revenue Policy of Department, Importance of Social Activities, Constitution of Sections for J.E., M-Gram Sewa App and Jal Sewa App (Maximum 50 Marks)

1) REVENUE POLICY OF DEPARTMENT:-

Water Supply Connections, Tariffs and Penalties, Types of Connections, Monthly Tariffs for various types of Connections, Domestic Connection, Commercial Establishments, Billing frequency and due date, All types of Penalties, Surcharge and Interest on non payment bills by due date, Surcharge of Non Payment of Current bill, Fee for connection of disconnected connection and collection of overdue charges/ recovery, Water Wastage Charges, Institutional arrangement for Revenue Collection and Eligibility conditions for Revenue Collectors, Payment of Incentive for collection of Revenue and other penalties, Dispute Redressed Mechanism and Appellate Authorities, One Time Measures of streamline the revenue collection, All the details regarding Revenue Collection Strategy (RCS), Shikyat Nivaran Kendar and redressal period of different types of Shikayats.

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5) M-Gram Sewa App.

- 1) Data Collection and Updation
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- 3) Regarding Bill Generation Receipt and Payments
- 4) Benefits of M-Gram Sewa App
- 5) Functioning of M-Gram Sewa App

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ACCOUNTS RELATED OF BILLING AND MEASUREMENT BOOK

(i) Measurement of work

Responsibility of J.E. in measurement of work, Measurement Books-their uses, writing of M.B, common mistakes in writing M.B.'s and their rectifications, loss of M.B.'s recording of M.B.'s etc.

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Stock Account, Register of stock, bin cards, M.A.S. accounts T&P accounts, survey report, stock returns, Indent Books and their use, physical verification of store, issue rates and storage charges.

(v) Duties of Junior Engineer

Duties of Junior Engineer as provided in the manual of orders.

(vi) Log Book of vehicles, machinery and plant

Maintenance of log books- Item to be recorded in a log book, out turns of vehicles. Appropriation of expenditure to different account heads, calculation of consumption and balance of fuel and lubricants.

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(Annexure-X)

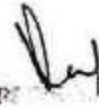
(Maximum 20 Marks)

VIVA

Topics

1. Drilling of Tubewells
2. Errection of Machinery
3. Maintenance of Machinery
4. Water Supply & Sanitation


ਜੇ. ਐੱਸ. ਐੱਸ. (ਉੱਤਰ) ਖੇਤਰ,
ਪਬ. ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਵਿਭਾਗ,
ਨਾਬਾ ਰੋਡ, ਪਟਿਆਲਾ।


ਜੇ. ਐੱਸ. ਐੱਸ. (ਉੱਤਰ) ਖੇਤਰ,
ਪਬ. ਸਪਲਾਈ ਅਤੇ ਸੈਨੀਟੇਸ਼ਨ ਵਿਭਾਗ,
ਨਾਬਾ ਰੋਡ, ਪਟਿਆਲਾ।


/CE(S)

Chief Engineer (South)
Pb. Water Supply & Sanitation Deptt.
Nabha Road, Patiala

