

MAHARASHTRA JEEVAN PRADHIKARAN
MAHARASHTRA ENVIRONMENTAL ENGINEERING
TRAINING & RESEARCH ACADEMY, NASHIK
Professional Examination of Sub Divisional Officers/ Engineers
Assistant Engineer Grade – I

November – 2020

Subject :- Water supply Sanitation Engineering (Oral)

Date :- 04/11/2020

Time:-14.00 to 14.30

Marks :-75

	Roll No.
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- Note :-
- 1) Solve all Questions
 - 2) Use of Calculator / Log table is allowed.
 - 3) Make suitable assumption if required. Assume Suitable Data. Wherever necessary and state them clearly.
 - 4) Marks are reserved in each question for neat sketches.
 - 5) Figure in bracket on the right side indicates full marks.
 - 6) Mobile, laptop & tablets are not allowed.

Question No.	1	2	3	4	5	Total
Marks Obtained						

Sign Of Supervisor

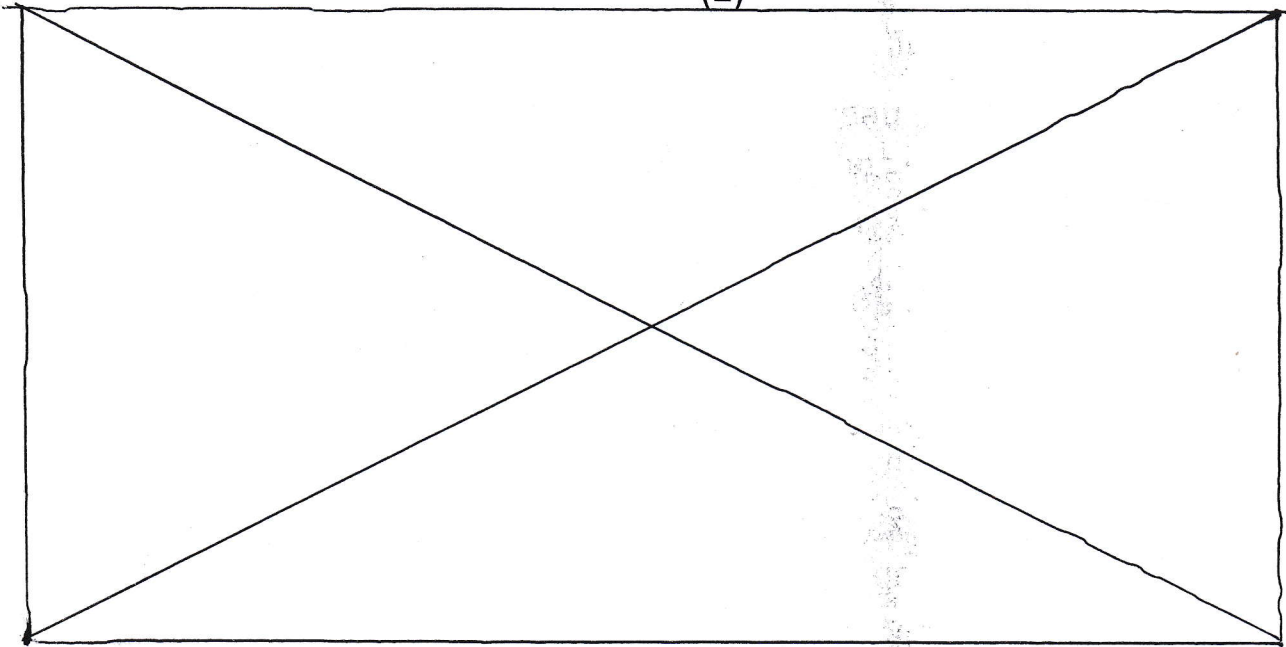
Sign of Examiner

Que.No.1:- A) Write long form of the following abbreviation. (7)

- a. MPN-----
- b. COD-----
- c. CPHEEO-----
- d. TDS-----
- e. HGL-----
- f. PVC-----
- g. STP-----

(1)

(2)



B) Give detention period of the following units (3)

i) Flocculator-----

ii) Settling Tank-----

iii) Grit chamber -----

C) Mention the use of the following (5)

1.) Thrust Block -----

2) Ultra sonic flow meter-----

3) Ferrule -----

4) Total station -----

5) Union in plumbing work-----

Que.No.2) State True Or False . (15)

1. Connecting Pipe of water intake designed for 3 volume flow -----
2. Prechlorination is done to prevent algae growth in raw water -----
3. Detention period in flocculation zone is considered as 15-30 mins-----
4. 1.8 to 2.0 m head loss is allowed for rapid sand filter _____
5. As per CPHEEO manual minimum residual pressure for peak demand for three storey building having height is 12m-----
6. Self cleansing velocity for design peak flow of sewer is 0.8 m/sec -----
7. Maximum permissible limit for drinking water for fluoride is 1.5 PPM-----
8. Back washing is required for pressure filter -----
9. C value of CI pipe is more than D.I pipe -----
- 10 I S 10500 is the standard for drinking water -----
- 11 In septic tank digestion of settled sludge is carried out by anaerobic decomposition process -----
- 12 Oxidation pond is aerobic stabilization Unit-----
- 13 .The settled sludge containing micro-organisms called activated sludge -----
- 14 .Capacity of ESR can be determined by mass curve -----
- 15 HDPE pipe is used for drainage -----

Que.No.3) A) Write down the permissible values. (3)

- i) Nitrates for drinking water ----- mg/litre
- ii) PH of drinking water -----
- iii) Turbidity -----

(4)

B) State the following (Any Two)

(5)

1) Various types of meters used in water supply scheme

2) Low cost sewage treatment options

3) Purpose of flash mixer in water treatment plant

C) Define the following (Any Two)

(4)

1) Peak factors for design of water supply distribution system

2) Residual chlorine

3) Working pressure of pipes

D) state purpose of following units

(3)

a) Aeration in WTP

b) Air Valve -----

c) Sour Valve -----

Que.No.4) Fill in the Blanks (15)

- 1) Design Period of water treatment plant is ----- years
- 2) Recommended maximum water supply for town with pipe water supply without sewerage system is ----- LPCD
- 3) Design Period of Rising main in sewerage system is ----- years
- 4) Bulk modulus of water is ----- kg/m^2
- 5) Detention time in septic tank is ----- hours
- 6) Loading rate of plain sedimentation tank is ----- $\text{m}^3/\text{day}/\text{m}$
- 7) Filtration rate of rapid sand filter ----- liter / m^2/hr
- 8) The disposal of treated waste water can be discharged in to river if the BOD of effluent is less than -----ppm
- 9) The accuracy of ultrasonic flow meter is ----- %
- 10) Minimum residual head in distribution is -----m

Que.No.5) A) Write in one or two sentences about the following (10)

1) Oxidation pond -----

2) Drop manholes -----

3) Manholes -----

(6)

4) Self cleansing velocity-----

5) Grit chamber-----

B) Give formula with details for following (Any Two) (5)

1) Manning's formula (V) -----

2) Hazen william's formula (V) -----

3) Horse power of pumping machinery-----

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