Interview Questions

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400+ TOP WASTE WATER Engineering Multiple Choice Questions & Answers

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WASTE WATER Engineering Multiple Choice Questions :-

1. For a continuous flow type of sedimentation tanks

A. Width of the tank is normally kept about 6 m
B. Length of the tank is normally kept 4 to 5 times the width
C. Maximum horizontal flow velocity is limited to 0.3 m/minute
D. All the above

ANS: D

2. The asbestos cement sewers are

A. Light in weight

B. Not structurally strong to bear large compressive stress

C. Susceptible to corrosion by sulphuric acid

D. All the above

ANS: D

3. For efficient working of a sewer, it must be ensured that

A. Minimum velocity of 0.45 m/sec, is maintained at its minimum flow

B. A maximum velocity of 0.90 m/sec, is maintained at its maximum flow

C. Both A. and B.

D. Neither A. nor B.

ANS: C

4. Pick up the correct statement from the following:

A. The sewer pipes of sizes less than 0.4 m diameter are designed as running full at maximum discharge

B. The sewer pipes of sizes greater than 0.4 m diameter are designed as running 2/3rd or 3/4th full at maximum discharge

C. The minimum design velocity of sewer pipes is taken as 0.8 m/sec

D. All the above

ANS: D

5. Pick up the correct statement from the following:

A. Maximum daily flow = 2 times the average daily flow

B. Maximum daily flow = average daily flow

C. Sewers are designed for minimum permissible velocity at minimum flow

D. All the above

ANS: D

6. Bottom openings 15 cm × 15 cm in the standing baffle wall are provided

A. 15 cm c/c
B. 22.5 cm c/c
C. 30 cm c/c
D. 50 cm c/c

ANS: B

7. The pressure exerted by

A. The sewage when running full from inside, is called internal pressure
B. The internal pressure if any, causes tensile stress in the pipe material
C. Pressure sewers are designed to be safe in tension
D. All the above

ANS: D

8. For drainage pipes in buildings the test applied before putting them to use, is

A. Water test
B. Smoke test
C. Straightness test
D. All the above

ANS: B

9. No treatment of the sewage is given if dilution factor is

A. Less than 150
B. Between 150 to 200
C. Between 200 to 300
D. More than 500

ANS: D

10. Which of the following pumps in used to pump sewage solids with liquid sewage without clogging the pump is?

A. Centrifugal pump
B. Pneumatic ejector
C. Reciprocating pump
D. None of these

ANS: A

WASTE WATER Engineering MCQs

11. Acid regression stage of sludge digestion at a temperature 21ºC extends over a period of

A. 15 days
B. 30 days
C. 60 days
D. 90 days

ANS: D

12. Pick up the correct statement from the following:

A. Small sewers are cleaned by flushing
B. Medium sewers are cleaned by cane rodding
C. Medium sewers may be cleaned by pills
D. All the above

ANS: D

13. The coagulant which is generally not used for treating the sewage, is

A. Alum

B. Ferric chloride

C. Ferric sulphate

D. Chlorinated copperas

ANS: A

14. The layers of vegetable wastes and night soil alternatively piled above the ground to form a mound, is called

A. A heap

B. Plateau

C. Windrow

D. None of these

ANS: D

15. If the flame of a miner's safety lamp in the upper layers of the sewer forms an explosive, the sewer certainly contains

A. Hydrogen sulphide

B. Carbon dioxide

C. Methane

D. Oxygen

ANS: C

16. The gas which may cause explosion in sewers, is

A. Carbondioxide

B. Methane

C. Ammonia

D. Carbon monoxide

ANS: B

17. Pick up the correct statement from the following:

A. The water supply pipes carry pure water free from solid particles

B. The water supply pipes get clogged if flow velocity is less than self cleansing velocity

C. The sewers may be carried up and down the hills and valleys

D. The sewer pipes are generally laid along level hills

ANS: A

18. Pick up the incorrect statement from the following:

A. The process of decomposing the organic matter under controlled anaerobic conditions, is called sludge digestion

B. Sludge digestion is carried out in sludge tank

C. The gases produced in sludge digestion process, contain 75% carbon dioxide

D. The gases produced in sludge digestion process, contain 75% methane

ANS: C

19. The sewer pipes

A. Carry sewage as gravity conduits

B. Are designed for generating self-cleansing velocities at different discharge

C. Should resist the wear and tear caused due to abrasion

D. All the above

ANS: D

20. The settling velocity of the particles larger than 0.06 mm in a settling tank of depth 2.4 is 0.33 m per sec. The detention period recommended for the tank, is

A. 30 minutes

B. 1 hour

C. 1 hour and 30 minutes

D. 2 hours

ANS: D

21. depends upon The Chezy's constant C in the formula V = C

A. Size of the sewer
B. Shape of the sewer
C. Roughness of sewer surface
D. All the above

ANS: D

22. The discharge per unit plan area of a sedimentation tank, is generally called

A. Over flow rate
B. Surface loading
C. Over flow velocity
D. All the above

ANS: D

23. Pick up the incorrect statement from the following for allowing workers to enter sewers

A. The particular manhole and one manhole on upstream and one manhole on downstream should remain open for 30 minutes
B. Proper tests for the presence of poisonous gases must be carried out
C. The men entering the manhole should be advised to smoke in the sewer
D. Warning signals should be erected

ANS: C

24. For the open drain (N = 0.025) shown in the below figure, the discharge is

A. 26.88 cumecs
B. 27.88 cumecs
C. 28.88 cumecs
D. 29.88 cumecs

ANS: C

25. To prevent settling down of sewage both at the bottom and on the sides of a large sewer, self-cleaning velocity recommended for Indian conditions, is

A. 0.50 m/sec
B. 0.60 m/sec
C. 0.70 m/sec
D. 0.75 m/sec

ANS: D

26. Assertion A.: The determination of pH value of sewerage is important.
Reason (R): The efficiency of certain treatment methods depends upon the availability of pH value.

A. Both A and R are true and R is the correct explanation of A
B. Both A and R are true but R is not a correct explanation of A
C. A is true but R is false
D. A is false but R is true

ANS: A

27. The normal values of over flow rates for sedimentation tanks using coagulant, ranges between

A. 25,000 to 35,000 litres/sqm/day
B. 40,000 to 50,000 litres/sqm/day
C. 50,000 to 60,000 litres/sqm/day
D. 80,000 to 100,000 litres/sqm/day

ANS: C

28. The drainage area of a town is 12 hectares. Its 40% area is hard pavement (K = 0.85), the 40% area is unpaved streets (K = 0.20) and the remaining is wooded areas (K = 0.15). Assuming the time of concentration for the areas as 30 minutes and using the formula Ps = 900/(t + 60) the maximum run off is

A. 0.10 cumec

B. 0.12 cumec

C. 0.15 cumec

D. 0.20 cumec

ANS: C

29. Sewer pipes are designed for maximum discharge with 25% to 33% vacant cross-sectional area for

A. Unexpected large scale infiltration of stream water

B. Unexpected increase in the population

C. Under estimates of maximum and average flows

D. All of the above

ANS: D

30. The rational formula for peak drainage discharge, was evolved by

A. Fruhling

B. Lloyd David

C. Kuichling

D. All of these

ANS: D

Q No: 31

The sewer that unloads the sewage at the point of treatment is called

A. Main sewer

B. Outfall sewer

C. Branch sewer

D. House sewer

ANS: B

Q No: 32

During preliminary treatment of a sewage

A. Oil and grease are removed from skimming tanks

B. Floating materials are removed by screening

C. Girt and sand are removed by girt chambers

D. All the above

ANS: D

Q No: 33

For a grit chamber, if the recommended velocity of flow is 0.2 m/sec and detention period is 2 minutes, the length of the tank, is

A. 16 m

B. 20 m

C. 24 m

D. 30 m

ANS: C

Q No: 34

Dry weather flow is:

A. Average daily rate of flow

B. Average monthly rate of flow

C. Average annual rate of flow

D. Water supply allowance per capita

ANS: D

Q No: 35

Pick up the incorrect statement from the following:

A. The mixture of water and waste products, is called sewage

B. The treated sewage effluents, are generally used for irrigating the crops

C. The process of collecting, treating and disposing off the sewage, is called sewerage

D. The old convergence system was definitely better than water carried sewerage system ANS: D

Q No: 36

Pick up the correct statement from the following:

A. The maximum rate of storm runoff is called peak drainage discharge

B. Rational method of estimating peak run off, may be used precisely for areas less than 50 hectares

C. The period after which the entire area starts contributing to the runoff, is called the time of concentration

D. All the above

ANS: D

Q No: 37

If q is the average sewage flow from a city of population P, the maximum sewage flow

A. $Q = [(4 +)/(18 +)] q$
B. $Q = [(18 + P)/(4 +)] q$
C. $Q = [(18 +)/(4 +)] q$
D. $Q = [(5 +)/((15 +)] q$
ANS: C

Q No: 38

¾th or ¼th extra space is left in sewer pipes at maximum discharge for

A. Low estimates of the average and maximum flows

B. Large scale infiltration of storm water

C. Unexpected increase in population

D. All the above

ANS: D

Q No: 39

If the flame of a miner's safety lamp in a manhole extinguishes within 5 minutes, the sewer certainly contains

A. Hydrogen sulphide

B. Carbon dioxide

C. Methane

D. Oxygen

ANS: B

Q No: 40

Hydraulic mean radius is

A. Mean radius of sewer

B. Difference in heads between two points in circular pipes

C. Mean of radii in a pipe line of varying cross -sections

D. Cross-sectional area/wetted perimeter

ANS: D

Q No: 41

If the depth of flow in a circular sewer is 1/4th of its diameter D, the wetted perimeter is

A. /2

B. /4

C. /3

D. D

ANS: C

Q No: 42

Pick up the correct statement from the following:

A. Anaerobic bacteria flourish in the absence of oxygen B. Aerobic bacteria flourish in the presence of oxygen C. Facultative bacteria flourish with or without oxygen D. All the above

ANS: D

The Brake Horse power of the motor (efficiency 60%) required for a pump of capacity 0.075 cumec

for a total lift of 12 m, is
A. 10
B. 15
C. 20
D. 25

Q No: 44

Aerobic bacterias

A. Flourish in the presence of free oxygen

B. Consume organic matter as their food

C. Oxidise organic matter in sewage

D. All the above

ANS: D

Q No: 45

At the junction of sewers

A. Top of smaller sewer is kept lower

B. Top of larger sewer is kept lower

C. Tops of both the sewers are at the same level

D. None of these

ANS: D

Q No: 46

Traps

A. Are water seals which prevent the entry of foul gases

B. Are used to trap the rats entering sewers

C. Dissolve the foul gases

D. Create symphonic action to increase the quick disposal of sewerage ANS: A

Q No: 47

The sewage treatment units in which anaerobic decomposition of organic matter is used, are called

A. Imhoff tanks

B. Trickling filters

C. Sludge sedimentation tanks

D. None of these

ANS: B

Q No: 48

Pick up the correct statement from the following:

A. In treated sewage, 4 ppm of D.O. is essential

B. Only very fresh sewage contains some dissolved oxygen

C. The solubility of oxygen in sewage is 95% that is in distilled water

D. All the above

ANS: D

Q No: 49

If the diameter of a sewer is 150 mm, the gradient required for generating self cleansing velocity, is

A. 1 in 60

B. 1 in 100

C. 1 in 120

D. None of these ANS: B

Q No: 50

The sewer which received discharge from two or more main sewers, is known as

A. A trunk sewer

B. An outfall sewer

C. A main sewer

D. An intercepting sewer

ANS: A

Q No: 51

The grit and silt of the grit chambers, may not be used for

A. Raising low lying areas by dumping

B. Concreting

C. Both A. and B.

D. Neither A. nor B.

ANS: B

Q No: 52

For treating the sewage of a large city, you will recommend

A. A sedimentation tank and an activated sludge treatment plant

B. A plant consisting of Imhoff tanks with low rate trickling filters

C. Sedimentation tanks with high rate trickling filters

D. None of these

ANS: A

Q No: 53

Imhoff cone is used to measure

A. Total organic solids

B. Total solids

C. Total in organic solids

D. Settleable solids ANS: D

Q No: 54

Pick up the correct statement from the following:

A. The ratio of the quantity of the diluting water to that of the sewage, is known as dilution factor

B. The automatic purification of polluted water, is known self purification phenomenon C. The photosynthesis is carried out in the presence of sun light
D. All the above

ANS: D

Q No: 55

1000 kg of sewage contains

A. 0.112 kg in suspension

B. 0.112 kg in solution

C. 0.225 kg in solution

D. Both A. and C. of above

ANS: D

Q No: 56

Dilution method of disposing of sewage, is not preferred to

A. When sewage is fresh

B. When diluting water has high dissolved oxygen content

C. When diluting water is used for water supply near the point of sewage disposed

D. When the diluting water is having flow currents ANS: C

Q No: 57

If the peak discharge of a storm water drain (S.W. Drain) is expected to exceed 150 cumecs, the free board to be provided, is

A. 100 cm

B. 90 cm

C. 80 cm

D. 50 cm

ANS: A

Q No: 58

The reduced levels of the string at the consecutive sight rails A and B are 203.575 m, 203.475 m respectively. If the difference of their R.D.s is 10 m, the gradient of the sewer line is

A. 1 in 100 upward

B. 1 in 500 upward

C. 1 in 100 downward

D. 1 in 503 upward

ANS: C

Q No: 59

R.M.O. expenses include

A. Running expenses

B. Maintenance expenses

C. Operation expenses

D. All the above

ANS: D

Q No: 60

For the COD test of sewage, organic matter is oxidised by $K_2Cr_2O_7$ in the presence of

A. H_2SO_4

B. HNO_3

C. HCl

D. None of these

ANS: A

Q No: 61

The sludge does not contain waste water from

A. Bath rooms

B. Wash basins

C. Kitchen sinks

D. Toilets

ANS: D

Q No: 62

In sewers the velocity of flow should not be

A. More than the self-cleansing velocity

B. Less than the self-cleansing velocity

C. Less than 10 m/sec

D. More than 20 m/sec

ANS: B

Q No: 63

Pick up the correct statement from the following:

A. Hydrogen sulphide gas in excess, may cause corrosion of concrete sewers

B. 4 ppm of Dissolved Oxygen (D.O.) is ensured before discharging the treated sewage in river

C. Solubility of oxygen in sewage is 95% of that of distilled water

D. All the above

ANS: D

Q No: 64

In sewers the effect of scouring is more on

A. Top side

B. Bottom side

C. Horizontal side

D. All sides ANS: B

Q No: 65

The rainfall at any place may be determined by

A. Its intensity

B. Its direction

C. Its frequency

D. All the above

ANS: D

Q No: 66

Pick up the correct statement from the following:

A. The circular section of sewers provides maximum hydraulic mean depth

B. The circular sewers are provided for separate sewerage system

C. The circular sewers work efficiently if the sections run at least half full

D. All the above

ANS: D

Q No: 67

Pick up the correct statement from the following:

A. Rate of digestion of sludge is more at higher temperature

B. Thermophilic organisms digest the sludge if the temperature ranges from 40° to 60°C

C. Mesophilic organisms digest the sludge if the temperature is between 25° and 40°C

D. All the above

ANS: D

Q No: 68

Sewer ventilating columns are generally placed at

A. Distances 150 m to 300 m

B. Upper ends of branch sewers

C. Every change in the size of sewers

D. All the above

ANS: D

Q No: 69

The sewer which resists sulphide corrosion, is

A. Brick sewer

B. Cast iron sewer

C. R.C.C. sewer

D. Lead sewer

ANS: D

Q No: 70

In a sedimentation tank (length L, width B, depth D) the settling velocity of a particle for a discharge Q, is

A. $Q/(B \times D)$

B. $Q/(L \times D)$

C. Q/L

D. $Q/(B \times L)$

ANS: D

Q No: 71

The formula which accepts the value of rugosity coefficient n = 0.012 to be used in Manning's formula, is given by

A. Bazin

B. Crimp and Bruges

C. William-Hazen

D. Kutter

ANS: B

Q No: 72

The amount of oxygen consumed by the aerobic bacterias which cause the aerobic biological decomposition of sewage, is known

A. Bio-Chemical Oxygen Demand (B.O.D.)

B. Dissolved Oxygen (D.O.)

C. Chemical Oxygen Demand (C.O.D.)

D. None of these

ANS: B

Q No: 73

Water content of sewage is about

A. 90 %

B. 95 %

C. 99 %

D. 9.9 %

ANS: D

Q No: 74

Skimming tanks are

A. Used to remove the grease and oil

B. Those from which sludge is skimmed out

C. Tanks provided with self- cleansing screens

D. Improved version of grit chambers

ANS: A

Q No: 75

The most efficient cross-section of sewers in a combined sewerage system is

A. Parabolic

B. Circular

C. Rectangular

D. New egged ANS: B

Q No: 76

The detention period for plain sedimentation water tanks, is usually

A. 4 to 8 hours

B. 8 to 16 hours

C. 16 to 24 hours

D. 24 to 36 hours

ANS: A

Q No: 77

The factor responsible for purification of sewage in river is

A. Hydrology

B. Dissolved oxygen in water

C. Temperature

D. All the above

ANS: D

Q No: 78

Hume steel pipes are

A. Steel pipes

B. Steel shell coated from inside with cement mortar

C. Steel shell coated from outside with cement mortar

D. Both B. and C.

ANS: D

Q No: 79

To maintain aerobic biological activity, the moisture content of the compost mass should be about

A. 45 %

B. 50 %

C. 55 %

D. 60 %

ANS: C

Q No: 80

Pick up the correct statement from the following:

A. The larger the sewer in size, more will be velocity

B. The smaller the sewer in size, less will be velocity

C. The larger the sewer in size, no deposition will take place

D. The larger the sewer in size, deposition will take place ANS: D

Q No: 81

The pH value of sewage is determined with the help of

A. Imhoff Cone

B. Turbid meter

C. Potentiometer

D. None of these

ANS: C

Q No: 82

If the length of overland flow from the critical point to the mouth of drain is 13.58 km and difference in level between the critical point and drain mouth is 10 m, the inlet time is

A. 2 hours

B. 4 hours

C. 6 hours

D. 8 hours

ANS: D

Q No: 83

The normal value of over flow rates for plain primary sedimentation tanks, ranges between

A. 25,000 to 35,000 litres/sqm/day

B. 40,000 to 50,000 litres/sqm/day

C. 50,000 to 60,000 litres/sqm/day

D. 80,000 to 100,000 litres/sqm/day

ANS: B

Q No: 84

Pick up the incorrect statement from the following:

A. Septic tanks are horizontal continuous flow type of sedimentation tanks

B. Septic tanks are generally provided a detention period of 12 to 36 hours

C. Septic tanks are completely covered and high vent shafts are provided for the escape of foul gases

D. None of these

ANS: D

Q No: 85

Which one of the following statements regarding septic tanks is wrong?

A. A gap of 7.5 cm between the bottom of the covering slab and the top level of scum is provided

B. The outlet invert level is kept 5 to 7.5 cm below the inlet invert level C. The minimum width of septic level is 90 cm

D. The depth of tank is kept equal to its width

ANS: D

Q No: 86

In a trickling filter

A. Filtration process is used

B. Biological action is used

C. Neither A. nor B.

D. Both A. and B. ANS: B

Q No: 87

In areas where rainy season is limited to a few months, the type of sewerage system recommended is

A. Combined system

B. Partially separate system

C. Separate system

D. None of these

ANS: C

Q No: 88

The rate of accumulation of sludge in septic tanks is recommended as

A. 30 litres/person/year

B. 25 litres/person/year

C. 30 litres/person/month

D. 25 litres/person/month

ANS: A

Q No: 89

Dried sewage after treatment is used as

A. Fertilizer

B. Building material

C. Chemical for lowering B.O.D.

D. Base material for paints

ANS: A

Q No: 90

15 cumecs, the depth d and width are related by

For drains up to

A. d = 0.2 B

B. d = 0.5 B

C. B = 0.2 d

D. B = 0.5 d

ANS: B

Q No: 91

In areas where light rains are uniformly distributed throughout the year, the type of sewerage system to be adopted is

A. Separate system

B. Combined system

C. Partially combined system

D. None of these ANS: B

Q No: 92

Self-cleansing velocity is

A. Velocity at dry weather flow

B. Velocity of water at flushing

C. Velocity at which no accumulation remains in the drains

D. Velocity of water in a pressure filter

ANS: C

Q No: 93

5 days-biochemical oxygen demand (BOD5) is taken at a temperature of

A. 0°C

B. 15°C

C. 20°C

D. 25°C

ANS: C

Q No: 94

Pick up the correct statement from the following:

A. Inlets are provided on the road surface at the lowest point for draining rain water B. Inlets are generally provided at an interval of 30 m to 60 m along straight roads C. Inlets having horizontal openings, are called horizontal inlets

D. All the above

ANS: D

Q No: 95

If a 2% solution of sewage sample is incubated for 5 days at 20°C and the dissolved oxygen depletion was found to be 8 mg/l. The BOD of the sewage is

A. 100 mg/l

B. 200 mg/l

C. 300 mg/l

D. 400 mg/l

ANS: D

Q No: 96

Pick up the in-correct statement from the following:

A. Manholes are provided in sewer pipes at suitable intervals

B. Catch basins are generally provided in sewers for carrying drainage discharge

C. Inlets are generally provided in all sewers

D. None of these

ANS: C

Q No: 97

A well oxidized sewage contains nitrogen mainly as

A. Nitrates

B. Nitrites

C. Free ammonia

D. None of these

ANS: A

Q No: 98

The moisture content of sludge is reduced from 90% to 80% in a sludge digestion tank. The percentage decrease in the volume of sludge, is

A. 25 %

B. 50 %

C. 10 %

D. 5 %

ANS: B

Q No: 99

In a sludge tank, the gas mainly produced, is

A. Oxygen

B. Nitrogen

C. Hydrogen

D. Carbon dioxide

ANS: D

Q No: 100

Bio-chemical oxygen demand (BOD) for the first 20 days in generally referred to

A. Initial demand

B. First stage demand

C. Carbonaceous demand

D. All of these

ANS: D

Q No: 101
are available in size
Stoneware sewers
A. 10 cm
B. 15 cm
C. 20 cm
D. All the above
ANS: D
Q No: 102
If is the diameter of upper circular portion, the overall depth of New
Egg shaped sewer section,
is A. 1.250 D

B. 1.350 D

C. 1.425 D

D. 1.625 D ANS: D

Q No: 103

In normal conditions, the period for sludge digestion, is

A. 10 days

B. 20 days

C. 30 days

D. 60 days

ANS: C

Q No: 104

For evaporation and measurement of settable solids, the apparatus used, is

A. A jar

B. A breaker

C. A test tube

D. An Imhoff cone

ANS: D

Q No: 105

In trickling filter, B.O.D. is reduced to

A. 30 to 40%

B. 40 to 60%

C. 60 to 80%

D. 80 to 90%

ANS: C

Q No: 106

For design of sewers, percentage of sewage discharge is assumed

A. 65 to 70%

B. 70 to 75%

C. 75 to 80%

D. 85%

ANS: C

Q No: 107

The grit chambers of sewage treatment plants, are generally cleaned after

A. 2 days

B. 7 days

C. 12 days

D. 14 days

ANS: D

Q No: 108

Maximum permissible velocity 1.5 m/sec, is adopted in drains

A. With beds of rocks and gravels

B. Lined with stones

C. Both A. and B.

D. Neither A. nor B.

ANS: C

Q No: 109

The average temperature of sewage in India, is

A. 10°C

B. 15°C

C. 20°C

D. 25°C

ANS: C

Q No: 110

'Cowl' is provided at

A. Lower end of ventilating column

B. Upper end of ventilating column

C. Upper end of the manhole

D. First step in manhole

ANS: B

Q No: 111
If the discharge of a sewer running half is 628 1.p.s., i = 0.001, and n = 0.010, the diameter of the
sewer, is
A. 1.39 m
B. 1.49 m
C. 1.59 m
D. 1.69 m
ANS: D
Q No: 112
A drop manhole is provided if
A. A sewer drops from a height
B. A branch sewer joins the main sewer at higher level
C. A lamp is inserted to check obstruction
D. None of these
ANS: B
Q No: 113 running partially full with central angle ,
For a circular sewer of diameter
A. d/D = ½ (1 – –
B. a/A

C. r/R = [1 –

D. All the above ANS: D

Q No: 114

The use of coarse screens for the disposal of sewage, may be dispensed with by

A. Comminutor

B. Shredder

C. Both A. and B.

D. Neither A. nor B.

ANS: C

Q No: 115

In the activated sludge process

A. Aeration is continued till stability

B. Aeration is done with an admixture of previously aerated sludge

C. Sludge is activated by constant stirring

D. Water is removed by centrifugal action

ANS: B

Q No: 116

For detecting the nitrates in sewage, the colour may be developed by adding

A. Potassium permanganate

B. Sulphuric acid and napthamine

C. Phenol-di -sulphuric acid and potassium hydroxide

D. None of these

ANS: C

Q No: 117

The settling velocity of a spherical particle of diameter less than 0.1 mm as per Stock's law, is

A. $V_s = 418 (G_s - G_w) d [(3T + 70)/100]$

B. $V_s = 418 (G_s - G_w)d^2 [(3T + 70)/100]$

C. $V_s = 218 (G_s - G_w)d^2 [(3T + 70)/100]$

D. $V_s = 218 (G_s - G_w)d [(3T + 70)/100]$

ANS: B

Q No: 118

In septic tanks,

A. Free board of 0.3 m may be provided

B. The baffles or tees are extended up to top level of scum

C. The clear space between the baffle top and covering slab is about 7.5 cm

D. All the above

ANS: D

Q No: 119

Inter-distance between ventilation columns in a sewer line is kept

A. 25 to 50 m

B. 50 m to 100 m

C. 100 m to 150 m

D. 150 m to 300 m

ANS: D

Q No: 120

Stone ware pipes are

A. Highly resistant to sulphide corrosion

B. Highly impervious

C. Hydraulically efficient because of their smooth interior surface

D. Especially suited to pressure pipes

ANS: D

Q No: 121

The intensity of rain is expressed in

A. cm/minute

B. cm/hour

C. cm/day

D. None of these

ANS: B

Q No: 122

The ratio of the diameter of a circular section and the side of a square section hydraulically equivalent, is

A. 1.095

B. 1.085

C. 1.075

D. 1.065

ANS: A

Q No: 123

Which one of the following part of human body withstands minimum radiation?

A. Thyroid

B. Kidneys

C. Eyes

D. Ovaries/testis

ANS: D

Q No: 124

Drop manholes are the manholes

A. Without entry ladders

B. Without manhole covers

C. With depths more than 3.5 m

D. Having drains at different levels ANS: D

Q No: 125

The bottom of the sewage inlet chamber of septic tanks, is provided an outward slope

A. 1 in 5

B. 1 in 10

C. 1 in 15

D. 1 in 20

ANS: B

Q No: 126

If 2% solution of a sewage sample is incubated for 5 days at 20°C and depletion of oxygen was found to be 5 ppm, B.O.D. of the sewage is

A. 200 ppm

B. 225 ppm

C. 250 ppm

D. None of these

ANS: C

Q No: 127

Primary treatment of sewage consists of removal of

A. Large suspended organic solids

B. Oil and grease

C. Sand and girt

D. Floating materials

ANS: A

Q No: 128

The sewers

A. Must be of adequate size to avoid over flow

B. Must flow under gravity ½ to ¾ full

C. Must be laid at least 2 to 3 m deep to collect /water from the basements

D. All the above

ANS: D

Q No: 129

Cement concrete sewers are only suitable if non-scouring velocity is between

A. 2.5 to 3.0 m/sec

B. 3.0 to 4.0 m/sec

C. 3.5 to 4.5 m/sec

D. 4.5 to 5.5 m/sec

ANS: A

Q No: 130

In a fully mechanised composting plant, involves

A. Mechanized receipt

B. Mechanized segregation

C. Mechanized pulverising of refuse

D. All of these

ANS: D

Q No: 131

The most widely used pump for lifting sewage is

A. Centrifugal pump

B. Reciprocating pump

C. Pneumatic ejector

D. Air pressure pump

ANS: A

Q No: 132
weight of water, the hydraulic mean depth of the sewer and the bed slope
w is the unit
of the sewer, then the tractive force exerted by flowing water, is
A. w r S S
B. w r1/2
C. w r S
D. w r2/3

ANS: A

Q No: 133

Setting out the alignments of sewers may start from

A. City

B. Out-fall

C. Tail end

D. Any point

ANS: C

Q No: 134

The detention time of a circular tank of diameter d and water depth H, for receiving the sewage Q per hour, is

A. d² (0.011d + 0.785H)/Q

B. d (0.022d + 0.085H)/Q

C. d (0.785d + 0.011H)/Q

D. d (0.285d + 0.011H)/Q

ANS: A

Q No: 135

Lead acetate test in sewer manhole is done to test the presence of

A. Methane gas

B. Hydrogen sulphide

C. Carbondioxide gas

D. Diesel vapours ANS: B

Q No: 136

Antisyphonage pipe is fitted

A. At the end of septic tanks

B. On manholes

C. With a W.C. trap

D. At the beginning of sewer line

ANS: C

Q No: 137

In a grit chamber of a sewage treatment plant,

A. Flow velocity 0.15 m to 0.3 m/sec is kept

B. Depth of 0.9 m to 1.20 m is kept

C. One minute of detention period is kept

D. All the above

ANS: D

Q No: 138

The ratio of maximum sewage flow to average sewage flow for mains up to 1 m in diameter, is

A. 1.5

B. 2.0

C. 3.0

D. 4.0

ANS: B

Q No: 139

pH value of sludge during alkaline regression stage, is

A. More than 7

B. Less than 7

C. Less than 6

D. More than 6

ANS: A

Q No: 140

The arrangement made for passing the sewer line below an obstruction below the hydraulic gradient lines called

A. Inverted syphon

B. Depressed sewer

C. Sag pipe

D. all of these

ANS: D

Q No: 141

Pick up the incorrect size of stone ware sewers

A. 52.5 cm

B. 67.5 cm

C. 82.5 cm

D. None of these

ANS: D

Q No: 142

Chlorination of water is done for the removal of

A. Bacterias

B. Suspended solids

C. Sediments

D. Hardness

ANS: A

Q No: 143

Sludge banks are formed if sewage is disposed of in

A. Rivers

B. Seas

C. Lakes

D. None of these

ANS: B

Q No: 144

Assertion A.: A free board of 0.3 m is provided above the top sewage line in septic tanks.

Reason (R): It helps to accommodate the scum in the septic tank.

A. Both A and R is true and R is the correct explanation of A

B. Both A and R is true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

ANS: A

Q No: 145

The temperature affects the

A. Biological activity of bacteria in sewage

B. Solubility of gases in sewage

C. Viscosity of sewage

D. All the above

ANS: D

Q No: 146

The clarigesters are

A. Circular septic tanks

B. Rectangular septic tanks

C. Circular Imhoff double tanks with bottom hoppers

D. Circular Imhoff double storey tanks without bottom hoppers
ANS: D

Q No: 147

The density of population over 40 hectares is 250/hectare. If water supply demand per day is 200 litres and sewage discharge is 80% of water supply, the sewage flow in sewers of separate system, is

A. 0.05552 cumec

B. 0.05554 cumec

C. 0.05556 cumec

D. 0.0556 cumec ANS: C

Q No: 148

In a residential colony, sewers of diameters 100 mm, 150 mm and 225 mm were laid with a gradient 1 in 120. Which portion of the sewage system does not choke in due course of time?

A. 100 mm dia.

B. 150 mm dia.

C. 225 mm dia.

D. All of these

ANS: C

Q No: 149

The spacing of bars for perforations in coarse screens used for the treatment of sewage, is

A. 20 mm

B. 30 mm

C. 40 mm

D. 50 mm

ANS: D

Q No: 150

In case of Imhoff tanks,

A. The shape is rectangular

B. Detention period is 2 hours

C. The velocity of flow is restricted to 0.30 m/minute

D. All the above

ANS: D

WASTE WATER Engineering Objective Questions Pdf ::
Q No: 151

The pH value of fresh sewage is usually

A. Equal to 7

B. More than 7

C. Less than 7

D. Equal to zero

ANS: B

Q No: 152

The maximum depth of sedimentation tanks, is kept

A. 3 m

B. 3.5 m

C. 4 m

D. 4.5 m

ANS: A

Q No: 153

If the depletion of oxygen is found to be 5 ppm after incubating a 2.5% solution of sewage sample for 5 days at 21°C, B.O.D. of the sewage is

A. 50 ppm

B. 100 ppm

C. 150 ppm

D. 200 ppm

ANS: D

Q No: 154

Pick up the correct statement from the following:

A. Indore method of composting involves decomposition under aerobic conditions

B. Bangalore method of composting involves decomposing under anaerobic conditions

C. Fully stabilised refuse by the Bangalore method of compositing is a powdery mass called humus

D. all of these

ANS: D

Q No: 155

Lead caulked joints are used for laying

A. Stone ware pipes

B. Earthenware pipes

C. C.I. pipes

D. G.I. pipes

ANS: B

Q No: 156

If D is the diameter of a circular sewer and D' is the top horizontal diameter of an equivalent egg shaped section, the relationship which holds good, is

A. D' = 0.64 D

B. D' = 0.74 D

C. D' = 0.84 D

D. D' = 0.94 D

ANS: C

Q No: 157

The spacing of man holes along a straight portion of a sewer is 300 m, the diameter of the sewer may be

A. 0.9 cm

B. 1.2 m

C. 1.5 m

D. > 1.5 m

ANS: D

Q No: 158

A sewer running partially full and hurried with back filled, fails in compression due to

A. Weight of the pipe

B. Weight of the back fill

C. Superimposed traffic loads

D. All the above

ANS: D

Q No: 159

A five day B.O.D. at 15°C of the sewage of a town is 100 kg/day. If the 5 day B.O.D. per head at 15°C for standard sewage is 0.1 kg/day, the population equivalent is

A. 100

B. 1000

C. 5000

D. 10000

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ANS: D

Q No: 160

Kjeldahl nitrogen is a mixture of

A. Ammonia and nitrogen

B. Nitrogen and organic nitrogen

C. Organic nitrogen and ammonia

D. All the above

ANS: D

WASTE WATER ENGINEERING Objective Questions with Answers

Q No: 161

The quantity of liquid waste which flows in sewers during the period of rainfall, is known

A. Sanitary sewage

B. Industrial waste

C. Storm sewage

D. None of these

ANS: C

Q No: 162

Nitrogen cycle of sewage, is

A. Liberation of ammonia-formation of nitrites-formation of nitrates-liberation of nitrogen

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B. Liberation of nitrogen-liberation of ammonia-formation of nitrites- formation of nitrates

C. Liberation of nitrogen-formation of nitrates-formation of nitrites-liberation of ammonia

D. Formation of nitrates-formation of nitrites-liberation of nitrates-liberation of nitrates ANS: A

Q No: 163

Depletion of ozone layer in the outer atmosphere may cause

A. Lung cancer

B. Skin cancer

C. Bronchitis

D. Heart disorder

ANS: B

Q No: 164

The minimum diameter of a sewer is kept

A. 10 cm

B. 15 cm

C. 20 cm

D. 25 cm

ANS: B

Q No: 165

A cylindrical ejector having its height 2 m fills after every 10 minutes with a peak sewage discharge of 0.0157 cumec. The

diameter of the ejector chamber, is

A. 2.30 m

B. 2.40 m

C. 2.45 m

D. 2.50 m

ANS: C

Q No: 166

Pick up the correct statement from the following:

A. The materials separated by screens, is called screenings

B. The screenings are disposed off either by burning or by burial or by dumping

C. The process of burning the screenings, is known as compositing

D. All the above

ANS: D

Q No: 167

Which one of the following gases is most significant as air pollutant?

A. Carbondioxide

B. Oxygen

C. Nitrogen

D. Sulphur-dioxide

ANS: D

Q No: 168

Hazen's formula VS = 418 (GS − Gw)d [(3T + 70)/100] is used for the settlement velocity of the particles of diameter

A. Less than 0.01 mm

B. Less than 0.05 mm

C. Less than 0.1 mm

D. Greater than 0.1 mm

ANS: D

Q No: 169

For sewers, inverted siphon is provided for

A. One pipe

B. Two pipes

C. Three pipes

D. Four pipes

ANS: C

Q No: 170

Pick up the correct statement from the following:

A. pH value indicates acidity and alkalinity of sewage B. In acidic sewage, the pH value is less than 7 C. In alkaline sewage, the pH value is more than 7

D. All the above

ANS: D

Q No: 171

For large sewers, maximum distance between manholes may be

A. 50 m

B. 100 m

C. 200 m

D. 300 m

ANS: D

Q No: 172

In sewers designed with self cleansing velocity,

A. The bottom is silted

B. The bottom is scoured

C. Both silting and scouring occur at the bottom

D. Neither silting nor scouring occurs at the bottom ANS: D

Q No: 173

The value of Chezy's constant $C = 157.6/(1.81 + K/\ )$ is used in

A. Chezy's formula

B. Bazin's formula

C. Kutter's formula

D. Manning's formula ANS: B

Q No: 174

An inverted siphon is designed generally for

A. One pipe

B. Two pipes

C. Three pipes

D. Four pipes

ANS: C

Q No: 175

The spacing of bars of perforations of fine screens used for the treatment of sewage, is

A. 2 to 3 mm

B. 3 to 5 mm

C. 5 to 8 mm

D. 8 to 10 mm

ANS: A

Q No: 176

Pathogens (or pathogenic bacterias) in water may cause

A. Typhoid

B. Cholera

C. Dysentery

D. All the above

ANS: D

Q No: 177

The rate of accumulation of sludge per person per year, is

A. 10 litres

B. 15 litres

C. 20 litres

D. 25 litres

ANS: C

Q No: 178

The screens are fixed

A. Perpendicular to the direction of flow

B. Parallel to the direction of flow

C. At an angle 30° to 60° to the direction of flow

D. None of these

ANS: C

Q No: 179

In circular sewers if depth of flow is 0.2 times the full depth, the nominal gradient,

A. Is only provided

B. Is doubled

C. Is trebled

D. Is not enough

ANS: B

Q No: 180

In detritus tanks,

A. Flow velocity is kept 0.09 m/sec

B. Detention period is kept 3 to 4 minutes

C. Organic and inorganic materials are separated

D. All the above

ANS: D

Q No: 181

The flow velocity in detritus tanks is

A. 0.05 m/sec

B. 0.09 m/sec

C. 1.25 m/sec

D. None of these

ANS: B

Q No: 182

If the side of a square sewer is 1000 mm, the diameter of a hydraulically equivalent circular section, is

A. 1045 mm

B. 1065 mm

C. 1075 mm

D. 1095 mm

ANS: D

Q No: 183

The water carried sewerage system removes

A. Domestic sewage

B. Industrial sewage

C. Storm sewage

D. All the above

ANS: D

Q No: 184

A nuisance is experienced in diluting water if dilution factor is less than

A. 100

B. 60

C. 40

D. 20

ANS: D

Q No: 185

A manhole is generally provided at each

A. Bend

B. Junction

C. Change of gradient

D. All the above

ANS: D

Q No: 186

The asbestos cement pipes are generally laid

A. Horizontally

B. Vertically

C. At an angle of 30°

D. At an angle of 60°

ANS: B

Q No: 187

The design period in years for pumping plants, is

A. 1

B. 2 to 3

C. 3 to 5

D. 5 to 10

ANS: D

Q No: 188

A safety lamp when inserted in the upper portion of a manhole causes flames. It indicates the presence of

A. Carbondioxide gas

B. Hydrogen sulphide gas

C. Methane gas

D. Petrol vapours

ANS: C

Q No: 189

The disintegrating pump in which solid matter is broken up before passing out, is

A. Centrifugal pump

B. Reciprocating pump

C. Pneumatic ejector

D. None of these

ANS: A

Q No: 190

If the depletion of oxygen is found to be 2.5 mg/litre after incubating 2.5 ml of sewage diluted to 250 ml for 5 days at 20°C, B.O.D. of the sewage is

A. 50 mg/l

B. 100 mg/l

C. 150 mg/l

D. 250 mg/l

ANS: D

Q No: 191

Design period of 40 to 50 years is adopted for

A. Branch sewers

B. Main sewers

C. Trunk sewers

D. All the above

ANS: D

Q No: 192

A circular sewer section is preferred to because

A. It is cheaper in construction

B. It provides maximum area for a given perimeter

C. It provides maximum hydraulic mean depth

D. All the above

ANS: D

Q No: 193

In very first stage of decomposition of the organic matter in sewage

A. Nitrites are formed

B. Nitrates are formed

C. Carbondioxide is formed

D. Ammonia is formed

ANS: D

Q No: 194

In a city the ratio of the drainage to sewage is 20, the percentage discharge passing through non-monsoon periods, is

A. 5

B. 10

C. 15

D. 20

ANS: D

Q No: 195

The self-cleansing velocity of water flowing through pipe lines, is

A. 2 metres/sec

B. 1 metre/sec

C. 0.5 metre/sec

D. 0.25 metre/sec ANS: A
Q No: 196

In case of sewer lines

A. Water test is carried out to check water tightness of the joints

B. Test for straightness is carried out with the help of a lamp and mirror

C. Obstruction test is carried out with the help of smooth ball of diameter 13 mm

D. All the above

ANS: D

Q No: 197

The normal values of over flow rates for secondary sedimentation tanks, ranges between

A. 25,000 to 35,000 litres/sqm/day

B. 40,000 to 50,000 litres/sqm/day

C. 50,000 to 60,000 litres/sqm/day

D. 80,000 to 10,000 litres/sqm/day

ANS: A

Q No: 198

A manhole is classified as shallow if its depth is between

A. 0.4 to 0.5 m

B. 0.5 to 0.7 m

C. 0.7 to 0.9 m

D. 0.9 to 1.20 m

ANS: C

Q No: 199

The first stage of neutral process of sludge digestion, is

A. Acid fermentation

B. Acid regression

C. Alkaline fermentation

D. None of these

ANS: A

Q No: 200

The stone ware sewers

A. Are used for carrying sewage and drainage from houses

B. Are manufactured from clays and shale

C. After casting are dried and burnt at temperature 150°C, 700°C and 1200°C

D. All the above

ANS: D

Q No: 201

The formula V = (1/n) r2/3

A. Chezy's formula

B. Bazin's formula

C. Kutter's formula

D. Manning's formula

ANS: D

Q No: 202

In sewers the highest non-scouring velocity is achieved in

A. Glazed bricks sewers

B. Cast iron sewers

C. Cement concrete sewers

D. Stone ware sewers

ANS: A

Q No: 203

The maximum diameter of sewers adopted in the designs is

A. 1.0 m

B. 2.0 m

C. 3.0 m

D. 4.0 m

ANS: C

Q No: 204

If D.O. concentration falls down to zero in any natural drainage, it indicates the zone of

A. Degradation

B. Active decomposition

C. Recovery

D. Cleaner water

ANS: B

Q No: 205

Facultative bacteria survive in

A. The presence of oxygen

B. The absence of oxygen

C. Both cases A. and B.

D. Neither A. nor B.

ANS: C

Q No: 206

For trunk and out-fall, the type of sewers generally used, is

A. Standard egg shaped

B. Circular shaped

C. Horse shoe shaped

D. Parabolic shaped ANS: C

Q No: 207

The maximum spacing of manholes specified by Indian standard in sewers upto 0.3 m diameter is

A. 20 m

B. 30 m

C. 45 m

D. 75 m

ANS: C

Q No: 208

The suitable cross-section of sewers to carry combined flow, is

A. Circular

B. Egg shaped

C. Rectangular

D. Horse shoe shaped

ANS: B

Q No: 209

The underground sewers are more subjected to

A. Tensile force

B. Compressive force

C. Bending force

D. Shearing force

ANS: B

Q No: 210

The minimum recommended diameter of sewers, is

A. 5 cm

B. 10 cm

C. 15 cm

D. 20 cm

ANS: C

Q No: 211

Ventilating shafts are provided to a sewer line at every

A. 100 m

B. 150 m

C. 200 m

D. 300 m

ANS: D

Q No: 212

The most efficient cross section of sewers in a separate sewerage system is

A. Parabolic

B. Circular

C. Rectangular

D. New egged ANS: B

Q No: 213

Boussinesq's equation for ascertaining unit pressure at a depth on sewers due to traffic loads, is

A. $pt = 3H3p/2\ Z5$

B. $pt = 2H3p/3\ Z5$

C. $pt = 3H3p/2Z5$

D. $pt = 2\ 3p/3Z5$ ANS: A

Q No: 214

If the over land flow from the critical point to the drain is 8 km and the difference in level is 12.4 m, the inlet time is

A. 2 hours

B. 3 hours

C. 4 hours

D. 5 hours

ANS: C

Q No: 215

For trunk sewers more than 1.25 m in diameter, the ratio of the maximum daily sewage flow to the average daily sewage flow is assumed

A. 1.5

B. 2.0

C. 2.5

D. 3.0

ANS: A

Q No: 216

The settlement of a particle in sedimentation tank, is affected by

A. Velocity of flow

B. Viscosity of water

C. Size and shape of solid

D. All the above

ANS: D

Q No: 217

If the pH value of sewage is 7

A. It is acidic

B. It is alkaline

C. It is neutral

D. None of these ANS: C

Q No: 218

A sewer pipe contains 1 mm sand particles of specific gravity 2.65 and 5 mm organic particles of specific gravity 1.2, the minimum velocity required for removing the sewerage, is

A. 0.30 m/sec

B. 0.35 m/sec

C. 0.40 m/sec

D. 0.45 m/sec

ANS: D

Q No: 219

The width of a settling tank with 2 hour detention period for treating sewage 378 cu m per hour, is

A. 5 m

B. 5.5 m

C. 6.5 m

D. 7 m

ANS: D

Q No: 220

The sewer which collects the discharge from a collecting system and delivers it to a treatment plant, is known

A. House sewer

B. Lateral sewer

C. Branch sewer

D. Sewer outfall

ANS: D

Q No: 221

For non-scouring velocity 5 m/sec, the type of sewers generally preferred to, is

A. Cast iron sewers

B. Cement concrete sewers

C. Glazed bricks sewers

D. Stone ware sewers

ANS: C

Q No: 222

Pick up the correct statement from the following:

A. The boning rod is used for checking the levels of the sewer inverts

B. Manhole covers are made circular for the convenience of the cleaning staff

C. A manhole is classified as shallow manhole if its depth is less than 0.9 m

D. All the above

ANS: D

Q No: 223

The ratio of maximum sewage flow to average sewage flow for trunk mains having diameters more than 1.25 m, is

A. 1.5

B. 2.0

C. 3.0

D. 4.0

ANS: A

Q No: 224

The most dangerous pollutant in vehicular emissions is

A. CO

B. SO_2

C. CO_2

D. O_3

ANS: A

Q No: 225

Large diameter sewers subjected to external pressure alone, are reinforced

A. Near the inner surface of the pipe

B. Near the outer surface of the pipe

C. Both A. and B.

D. With elliptical cage

ANS: D

Q No: 226

For laying a sewer line in a trench of 2 m width, an offset line is marked on the ground parallel to the given centre line at a distance of

A. 100 cm

B. 120 cm

C. 140 cm

D. 160 cm

ANS: D

Q No: 227

The liquid wastes from kitchens, bath rooms and wash basins, is not called

A. Liquid waste

B. Sullage

C. Sewage

D. None of these

ANS: C

Q No: 228

The detention time (t) of a settling tank, may be defined as the time required for

A. A particle to travel along its length

B. A particle to travel from top surface to bottom sludge zone C. The flow of sewage to fill the tank

D. None of these

ANS: C

Q No: 229

The following is the physical characteristic of sewage

A. Turbidity

B. Colour

C. Odour

D. All the above

ANS: D

Q No: 230

The effluent of a septic tank is

A. Fit for discharge into any open drain

B. Foul and contains dissolved and suspended solids

C. As good as that from a complete treatment

D. None of these

ANS: A

Q No: 231

The design period of sewage treatment works in normally

A. 5 – 10 years

B. 15 – 20 years

C. 30 – 40 years

D. 40 – 50 years

ANS: B

Q No: 232

In Chezy's formula V = C rs for calculating the velocity of flow in circular sewer of diameter running full, the value of hydraulic mean radius is

A. D

B. D /2

C. D/3

D. D/4

ANS: D

Q No: 233

It is customary to design a sewer for D.W.F. on the basis of

A. Average demand

B. Twice the average demand

C. Thrice the average demand

D. Four times the average demand

ANS: C

Q No: 234

For sewer mains of 0.5 to 1 m diameter, the ratio of maximum daily sewage flow to the average daily sewage flow is assumed

A. 1.5

B. 2.0

C. 2.5

D. 3.0

ANS: B

Q No: 235

Fresh sewage is generally

A. Alkaline

B. Acidic

C. Highly decomposed

D. A source of objectionable odour

ANS: A

Q No: 236

The recommended detention period for grit chambers is

A. 1 minute

B. 2 minutes

C. 3 minutes

D. 5 minutes

ANS: A

Q No: 237

For detecting the nitrites in the sewage, the matching colour may be developed by adding

A. Potassium permanganate

B. Sulphuric acid and napthamine

C. Phenol-di -sulphuric acid potassium hydroxide

D. None of these

ANS: B

Q No: 238
If is the diameter of upper circular portion, the overall depth of a standard egg shaped section,
is

A. D

B. 1.25 D

C. 1.5 D

D. 1.75 D ANS: C

Q No: 239

The laying of sewers is done with

A. Magnetic compass

B. Theodolite

C. Level

D. Clinometer ANS: C

Q No: 240

A rainfall may be classified as acidic if its pH value is less or equal to

A. 6

B. 7

C. 5

D. 6.5

ANS: C

Q No: 241

The settlement velocity of a solid (diameter 0.5 mm, specific gravity 1.75) in water having temperature 10°C, is

A. 213.5 cm/sec

B. 313.5 cm/sec

C. 413.5 cm/sec

D. 500 cm/sec

ANS: B

Q No: 242

For house drainage minimum gradient is

A. 1 in 60

B. 1 in 80

C. 1 in 10

D. 1 in 400

ANS: A

Q No: 243

For estimating the peak run off the rational formula Q = 0.0278 KpA was evolved by

A. Kinchling

B. Lloyd Davis

C. Frubling

D. All the above

ANS: D

Q No: 244

A rain sanitary sewer is constructed to carry

A. Sanitary sewage

B. Storm sewage

C. Surface water

D. Ground water

ANS: A

Q No: 245

The most effective arrangement for diverting excess storm water into a natural drainage, is

A. Leaping weir

B. Overflow weir

C. Siphon spill way

D. None of these

ANS: C

Q No: 246

The drop man holes are generally provided in sewers for

A. Industrial areas

B. Large town ships

C. Hilly town ships

D. Cities in plains

ANS: C

Q No: 247

For a peak discharge of 0.0157 cumec, with a velocity of 0.9 m/sec, the diameter of the sewer main, is

A. 10 cm

B. 12 cm

C. 15 cm

D. 18 cm

ANS: C

Q No: 248

For design purposes, the normal rate of infiltration of ground water into the sewer, is

A. 500 litres/km/cm

B. 1000 litres/km/cm

C. 1500 litres/km/cm

D. 2000 litres/km/cm

ANS: D

Q No: 249

You are asked to design sewer pipes of diameters 0.4 m to 0.9 m at maximum flow, you will assume the sewer flow running at

A. Full depth

B. Half full

C. Two third full

D. Three fourth full

ANS: B

Q No: 250

The algae dies out in the zone of

A. Degradation

B. Active decomposition

C. Recovery

D. Cleaner water ANS: A

Q No: 251

In a sludge digestion tank if the moisture content of sludge V1 litres is reduced from p1 % to p2 % the volume V2 is

A. $[(100 + P_1)/(100 - P_2)] V_1$

B. $[(100 - P_1)/(100 + P_2)] V_1$

C. $[(100 - P_1)/(100 - P_2)] V_1$

D. $[(100 + P_2)/(100 - P_1)] V_1$

ANS: C

Q No: 252

Assertion A. : Discharging the effluents from the oxidation ponds just up stream of lakes or reservoirs is undesirable.

Reason (R) : The discharged algae get settled in the reservoirs and cause anaerobic decomposition and other water qualities.

A. Both A and R are true and R is the correct explanation of A B. Both A and R are true but R is not a correct explanation of A C. A is true but R is false

D. A is false but R is true

ANS: A

Q No: 253

The sewage treatment in septic tanks is due to

A. Anaerobic decomposition

B. Aerobic decomposition

C. Parasitic decomposition

D. None of these

ANS: A

Q No: 254

The dimensions of a rectangular settling tank are: length 24 m, width 6 m and depth 3 m. If 2 hour detention period for tanks is recommended, the rate of flow of sewage per hour, is
A. 204 cu.m

B. 208 cu.m

C. 212 cu.m

D. 216 cu.m

ANS: D

Q No: 255

If is the rugosity coefficient, is the bed slope of sewer, the velocity of flow in m/sec may be obtained by the formula $V = (1/n) r^{2/3} s^{1/2}$ evolved by

A. Chezy

B. Manning

C. Bazin

D. Kutter ANS: B

Q No: 256

Disposal to sewage in large cities, is done in

A. Irrigation

B. Dilution

C. Oxidation

D. Purification

ANS: B

Q No: 257

3.0 ml of raw sewage is diluted to 300 ml. The D.O. concentration of the diluted sample at the beginning of the test was 8 mg/l. After 5 day-incubation at 20°C, the D.O. concentration was 5 mg/l. The BOD of raw sewerage is

A. 100 mg/l

B. 200 mg/l

C. 300 mg/l

D. 400 mg/l

ANS: C

Q No: 258

The digested sludge from septic tanks, is removed after a maximum period of

A. 3 years

B. 3.5 years

C. 4 years

D. 5 years

ANS: A

Q No: 259

Assertion A.: The minimum self cleansing velocity in the sewer, at least once a day, must be generated.

Reason (R): If certain deposition takes place and is not removed, it obstructs free flow and causes further deposition leading to complete blocking of the sewer.

A. Both A and R are true and R is the correct explanation of A B. Both A and R are true but R is not a correct explanation of A C. A is true but R is false

D. A is false but R is true

ANS: A

Q No: 260

The presence of free ammonia in sewage, is detected by

A. Boiling

B. Adding potassium permanganate

C. Adding sulphuric acid

D. Phenol-di-sulphuric acid ANS: A

Q No: 261

Dry water flow in a combined sewer, is

A. Industrial sewage

B. Domestic sewage

C. Storm water

D. Inclusive of domestic and industrial sewage but excludes storm water ANS: C

Q No: 262

The porosity of sediments in sewer pipes, is usually taken as

A. 0.010

B. 0.011

C. 0.012

D. 0.013

ANS: D

Q No: 263

In sewage having fully oxidised organic matter, the nitrogen exists in the form of

A. Nitrites

B. Nitrates

C. Free ammonia

D. Aluminoid nitrogen

ANS: B

Q No: 264

The minimum diameter of sewer to be adopted is

A. 10 cm

B. 12.5 cm

C. 15 cm

D. 25 cm

ANS: C

Q No: 265

If the diameter of sewer is 225 mm, the gradient required for generating self cleansing velocity, is

A. 1 in 60

B. 1 in 100

C. 1 in 120

D. None of these

ANS: C

Q No: 266

The sewerage system consists of

A. House sewer

B. Lateral sewer

C. Branch sewer

D. All of these

ANS: D

Q No: 267

Clogging of sewers, is caused due to

A. Silting

B. Low discharge

C. Greasy and oily matters

D. All the above

ANS: D

Q No: 268

Oxidation process results in the formation of

A. Carbon dioxide

B. Nitrates

C. Sulphates

D. All the above

ANS: D

Q No: 269

The sewage is pumped up

A. From low lying areas

B. From flat areas

C. From basements

D. All the above

ANS: D

Q No: 270

The angle subtended by the surface of sewer water with partial flow, at sewer centre is 120°, the depth of sewerage is

A. 20 cm

B. 25 cm

C. 40 cm

D. 50 cm

ANS: D

Q No: 271

Pick up the correct statement from the following:

A. Turbidity is more in strong sewage

B. The black colour indicates septic sewage

C. The sewage omits offensive odours after four hours

D. All the above

ANS: D

Q No: 272

If the grit in grit chambers is 4.5 million litres per day, its cleaning is done

A. Manually

B. Mechanically

C. Hydraulically

D. Electrically

ANS: A

Q No: 273

Which one of the following tests is used for testing sewer pipes?

A. Water test

B. Ball test

C. Mirror test

D. All of these

ANS: D

Q No: 274

The ratio of depths at partial flo

A. 1 −

B. 1 −

C. ½ (1 −

D. ½ (1 −

ANS: C

Q No: 275

The non-clog pump which permits solid matter to pass out with the liquid sewage, is

A. Centrifugal pump

B. Reciprocating pump

C. Pneumatic ejector

D. None of these

ANS: A

Q No: 276

With self cleansing velocity in sewers

A. Silting occurs at bottom

B. Scouring occurs at bottom

C. Both silting and scouring occur at bottom

D. Neither silting nor scouring occurs at bottom

ANS: D

Q No: 277

When drainage to sewage ratio is 20, the peak dry weather flow is

A. 20% of the design discharge

B. Slightly less than 5% of the design discharge

C. Slightly more than 5% of the design discharge

D. None of these

ANS: B

Q No: 278

As compared to fresh river water, sea water contains oxygen

A. 10% less

B. 20% less

C. 10% more

D. 20% more

ANS: B

Q No: 279

Flocculated particles do not change their

A. Size

B. Shape

C. Weight

D. None of these

ANS: D

Q No: 280

Imhoff cone is used to determine

A. Settleable solids

B. Suspended solids

C. Dissolved solids

D. None of these

ANS: A

Q No: 281

For providing an Indian type W.C., the R.C.C. slabs in the toilet portion

A. Should be sunk by 20 cm

B. Should be kept 20 cm above the adjacent portion

C. Should be sunk by 50 cm

D. Need not be sunk

ANS: C

Q No: 282

Discrete or granular particles change their

A. Size

B. Shape

C. Weight

D. None of these ANS: D

Q No: 283

The sewer pipe which carries sewage from a building for immediate disposal is

A. House sewer

B. Lateral sewer

C. Intercepting sewer

D. Main sewer

ANS: A

Q No: 284

The ratio of design discharge to the surface area of a sedimentation tank is called

A. Surface loading

B. Overflow rate

C. Overflow velocity

D. All of these

ANS: D

Q No: 285

In SI units the power of sound is represented in

A. Kgs

B. Joules

C. Newtons

D. Watts

ANS: D

Q No: 286

Which one of the following resists hydrogen sulphide corrosion?

A. R.C.C.

B. Glazed stone wares

C. Asbestos cement

D. Glazed ware

ANS: D

Q No: 287

The width of a rectangular sewer is twice its depth while discharging 1.5 m/sec. The width of the sewer is

A. 0.68 m

B. 0.88 m

C. 1.36 m

D. 1.76 m

ANS: C

Q No: 288

In olden days the type of section adopted in trunk and out fall sewers was

A. Parabolic shaped

B. Horse shoe shaped

C. Egg shaped

D. Circular shaped

ANS: B

Q No: 289

For the survival of fish in a river stream, the minimum dissolved oxygen is prescribed

A. 3 ppm

B. 4 ppm

C. 5 ppm

D. 10 ppm

ANS: B

Q No: 290

In primary sedimentation, the 0.2 mm inorganic solids get separated if specific gravity is

A. 2.25

B. 2.50

C. 2.55

D. 2.65

ANS: D

Q No: 291

The coagulant widely used for sewage treatment, is

A. Alum

B. Ferric chloride

C. Ferric sulphate

D. Chlorinated copperas

ANS: B

Q No: 292

House connections to the laterals is generally made by

A. R.C.C.

B. P.C.C.

C. Cast iron

D. Glazed stonewares

ANS: D

Q No: 293

The ratio of minimum hourly flow to the average flow of sewage is

A. 1/4

B. 1/3

C. 1/2

D. 3/4

ANS: B

Q No: 294

In R.C. sewer pipes, the percentage longitudinal reinforcement to the cross-sectional area of concrete is kept

A. 10.0

B. 5.0

C. 2.0

D. 0.25

ANS: D

Q No: 295

Removal of oil and grease from sewage, is known

A. Screening

B. Skimming

C. Filtration

D. None of these

ANS: B

Q No: 296

Rate of flow of sewage is generally assumed

A. More than the rate of water supply

B. Equal to the rate of water supply

C. Less than the rate of water supply

D. At 150 litres per capita

ANS: D

Q No: 297

The gradient of sewers depends upon

A. Velocity of flow

B. Diameter of the sewer

C. Discharge

D. All the above

ANS: D

Q No: 298

If the depth of partial flow in a sewer of diameter 2 m, is 50 cm, its wetted perimeter is

A.

B. /2

C. /3

D. 2 /3

ANS: D

Q No: 299

The standard B.O.D. of water is taken for

A. 1 day

B. 2 days

C. 3 days

D. 5 days

ANS: D

Q No: 300

In sewers the gas generally found, is

A. Hydrogen sulphide (H2S)

B. Carbon dioxide (CO2)

C. Methane (CH4)

D. All the above

ANS: D

Q No: 301

Fresh sewage may become stale in

A. One hour

B. Two to three hours

C. Three to four hours

D. Six hours

ANS: C

Q No: 302

The small sewers are cleaned by

A. Flushing

B. Cane rodding

C. Wooden pills

D. None of these

ANS: A

Q No: 303

The sewage discharge in a detritus tank of a treatment plant is 576 litres/sec with flow velocity of 0.2 m/sec. If the ratio of width to depth is 2, the depth is

A. 100 cm

B. 110 cm

C. 120 cm

D. 150 cm

ANS: C

Q No: 304

If is the diameter of upper circular portion, the area of cross-section of a standard egg shaped sewer, is

A. D^2

B. D^2

C. D^2

D. D^2

ANS: A

Q No: 305

Drop manholes at the junctions of sewer lines, are provided if

A. Invert level of a branch sewer is more than 60 cm that of the main sewer

B. Sewer line runs along a main road

C. Ordinary manhole cannot be built

D. Two sewer lines intersect

ANS: A

Q No: 306

In sewage, the solids in mg per litre is

A. 100 to 500

B. 500 to 1000

C. 1000 to 1500

D. 1500 to 2000

ANS: B

Q No: 307

During purification process of sewage the gas given off, is

A. Carbon dioxide

B. Hydrogen

C. Ammonia

D. All the above

ANS: D

Q No: 308

The gas evolved in sewers is

A. Carbondioxide

B. Hydrogen sulphide

C. Methane

D. All of these

ANS: D

309. The sewerage system originates from

A. House sewers

B. Lateral sewers

C. Branch sewers

D. Main sewers

ANS: A

310. If a paper moistened with lead acetate for five minutes when placed in manhole turns black. The sewer certainly contains

A. Hydrogen sulphide

B. Carbon dioxide

C. Methane

D. Oxygen

ANS: A

311. In septic tanks, decomposition of organic bacteria, is done by

A. Anaerobic bacteria

B. Aerobic bacteria

C. Both types of bacterias

D. None of these

ANS: A

312. The sewer which transports the sewage to the point of treatment, is called

A. House sewer

B. Out-fall sewer

C. Branch sewer

D. Main sewer

ANS: B

313. Sewer pipes need be checked for

A. Minimum flow

B. Maximum flow

C. Both A. and B.

D. None of these

ANS: C

314. To test chemical oxygen demand (C.O.D.) of sewage, organic matter is oxidised by potassium dichromate in the presence of

A. Hydrochloric acid

B. Sulphuric acid

C. Nitric acid

D. Citric acid

ANS: B

315. hydraulically equivalent, the relationship which holds good, is

A. D8/3 = 4 b8/3

B. D3/8 = 4 b3/8

C. D2/3 = 4 b2/3

D. D3/2 = 4 b3/2

ANS: A

316. If the diameter of a sewer is 100 mm, the gradient required for generating self cleansing velocity is

A. 1 in 60

B. 1 in 100

C. 1 in 120

D. None of these

ANS: A

317. Aerobic activity is maximum

A. In freshly produced sewage

B. At sewer pipes

C. In sewer treatment plants

D. None of these

ANS: A

318. In 1000 kg of sewage, the total solids approximate

A. 0.5 to 1.0 kg

B. 1 kg to 2.0 kg

C. 5 kg to 7.5 kg

D. 7.5 kg to 10 kg

ANS: A

319. Sewer manholes are generally provided at

A. The change of gradient

B. The change of direction

C. The junctions of sewers

D. All of these

ANS: D

320. Before discharging the foul sewage into rivers, it is generally treated by

A. Screening

B. Sedimentation

C. Oxidation

D. All the above

ANS: D

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