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**Q : 1) Which of the following soil types is suitable for sprinkler irrigation?**

**A : When land is steep and soil is easily erodible**

**B : when the crops are deeply rooted**

**C : when soil of low permeability is used**

**D : when water table is very low**



**Q : 2) Which is NOT a method of controlled flooding in irrigation methods?**

**A : Contour**

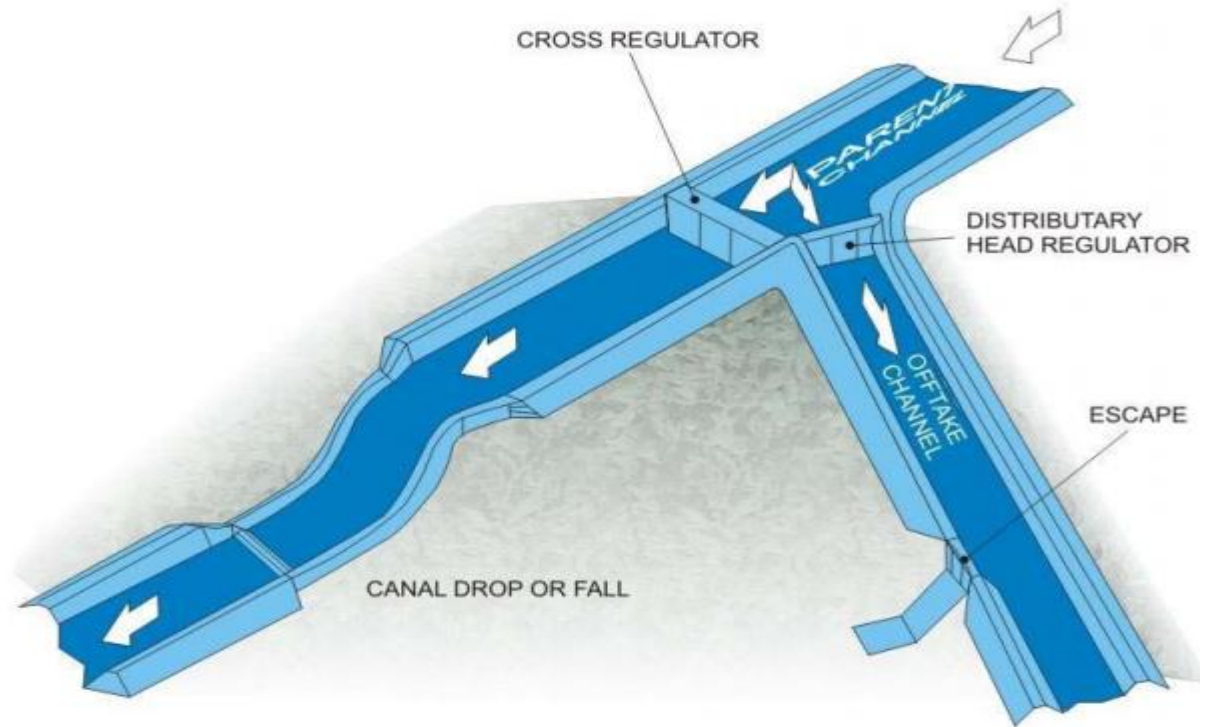
**B : Check basin**

**C : Ring basin**

**D : Border strip**

**Q : 3) Which of the following hydraulic jumps usually develops in barrages and canal head regulators?**

- (a) Weak and/or oscillating type**
- (b) Undular**
- (c) Strong**
- (d) Steady**



**Q : 4) For effective control of silt energy into the canal, the silt of the head regulator should be**

- (a) below the sill of the under sluices**
- (b) Above the sill of the under sluices**
- (c) At the same level as the sill of under sluices**
- (d) At the maximum flood level**

**Q : 5) Silt excludes are provided**

- (a) near the canal head regulator**
- (b) at the lowest portion of the dam**
- (c) near the afflux bunch**
- (d) below the spillway**

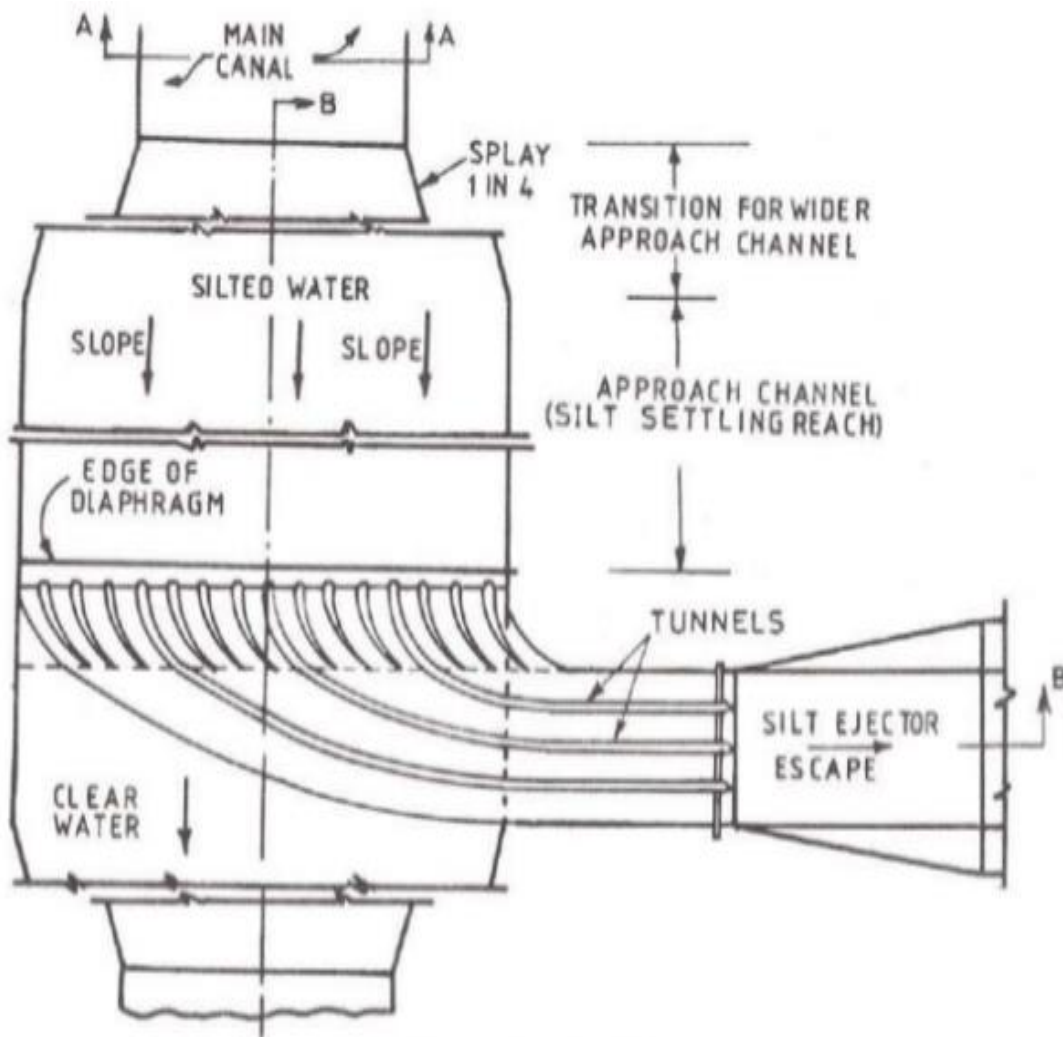


Fig: Plan of Silt Ejector

# Silt Control Devices

- **Silt Excluder:** The silt excluder is located on the u/s of diversion weir and in front of the head regulator. The object is to remove silt that has entered in the stilling basin through scouring sluices.
- **Silt Ejector:** Silt Ejector is located in the canal take off from the diversion weir at 6 to 10 km in the canal reach. It ejects the silt that has entered in the canal



**Q : 6) An outlet which maintains a constant discharge irrespective of fluctuation in the water levels of the supplying channel or water course, is known as**

- (a) Non-modular outlet**
- (b) Flexible outlet**
- (c) Rigid module**
- (d) All of the above**

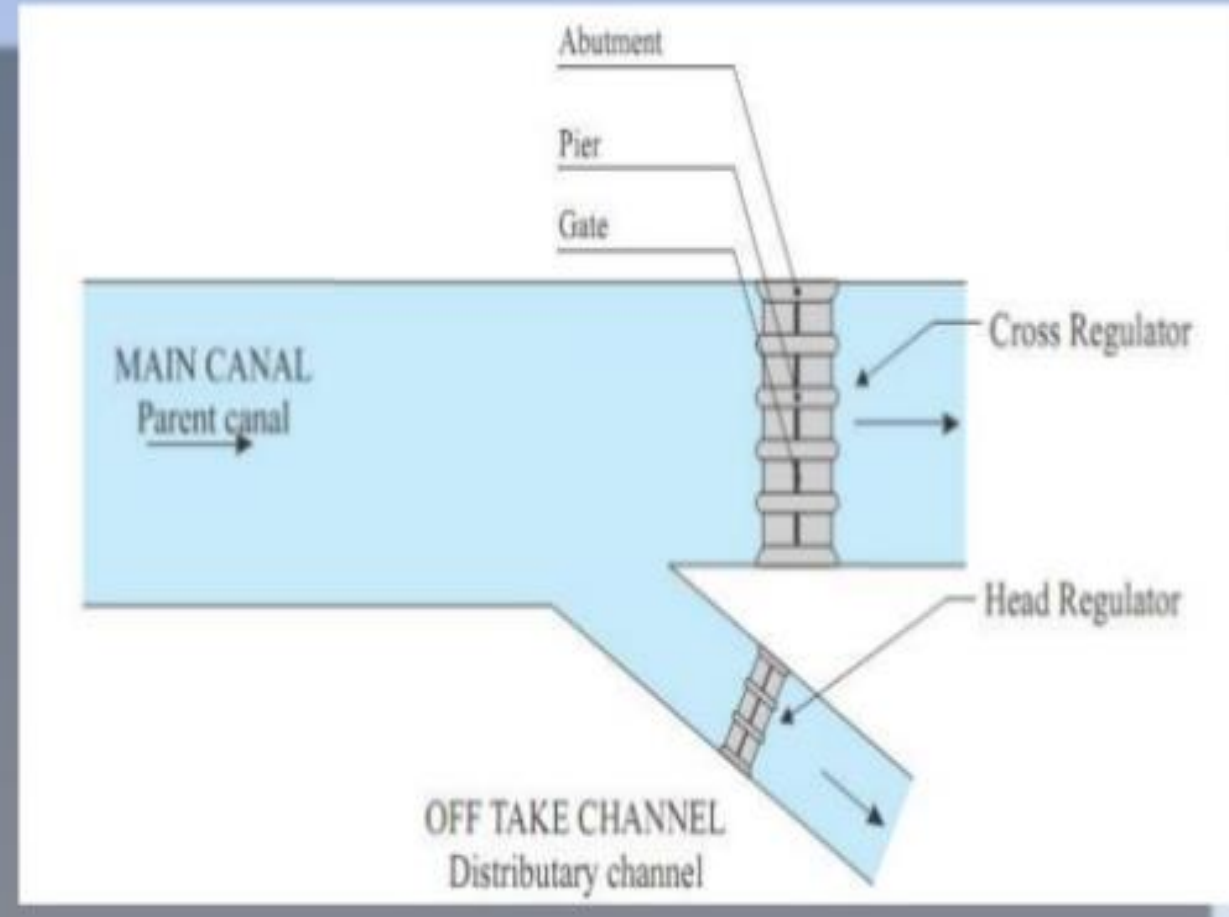
**Q : 7) The Purpose of cross regulator in a canal is-**

- (a) To regulate water supply in the off-taking channel**
- (b) To head up water of adequate supply into the off-taking channel**
- (c) To regulate water supply in the main channel**
- (d) To regulate excessive flood water**

**Cross Regulator • A Regulator Constructed in the main canal or parent canal downstream of an off take canal is called cross-regulator. •**

**It is generally constructed at a distance of 9 to 12 km along the main canal and 6 to 10 km along branch canal. • Functions: • (i) To Control the flow of water in canal system • (ii) To feed the off taking Canals • (iii) To enable closing of the canal breaches on the d/s • (iv) To provide roadway for vehicular traffic**

## Canal regulators



**Q : 8) Vertical drop fall is satisfactory for a height upto**

- (a) 1.5 m**
- (b) 5.0 m**
- (c) 0.5 m**
- (d) 3.5 m**

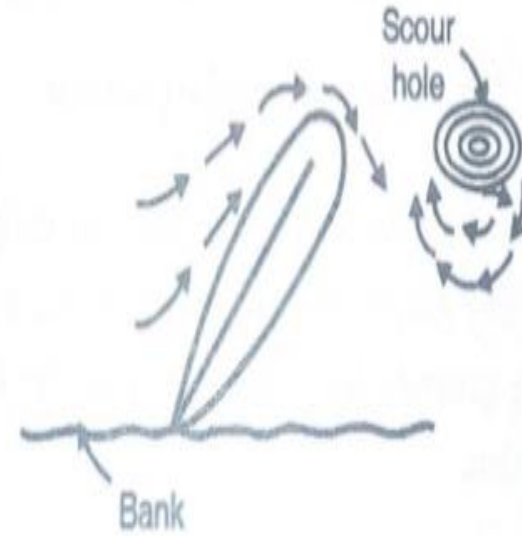


**Q : 9) A deflecting groyne in a river is**

- (a) inclined towards upstream**
- (b) inclined towards downstream**
- (c) perpendicular to the bank**
- (d) none of these**

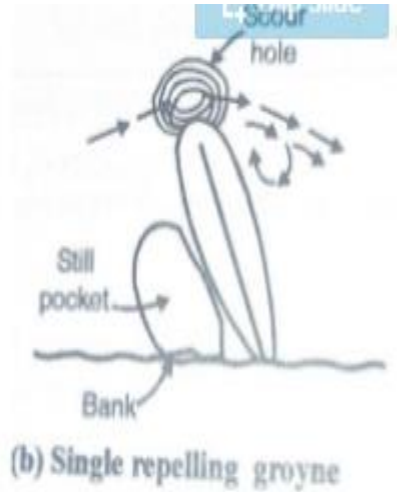
### 1. Attracting groynes:

A groyne which points out d/s, tend to attack the river flow toward the bank on which it has been provided.



(a) Single attracting groyne

2. Repelling groynes: It tend to repel the river flow, away from the bank.



(b) Single repelling groyne

3. Deflecting groynes: They are either perpendicular to the bank or pointing slightly u/s have short length.



- Q : 10) A repelling groyne in a river is**
- (a) inclined towards downstream at  $30^\circ$**
  - (b) inclined towards upstream at  $30^\circ$**
  - (c) perpendicular to the bank**
  - (d) none of these**

**Q : 11) A divide wall is provided:**

- (a) at right angle to the axis of weir**
- (b) parallel to the axis of weir and upstream of it**
- (c) parallel to the axis of weir and downstream of it**
- (d) at an inclination of  $45^\circ$  to the axis of weir**



**Q : 12) Which of the following is a type of semi-modular outlet?**

- (a) Submerged pipe outlet**
- (b) Open flume outlet**
- (c) Both (b) and (d)**
- (d) Kennedy's Gauge outlet**

**Q : 13) The width of launching apron is normally equal to  
OR**

**If  $D$  is the depth of US pile the horizontal length of  
launching apron is generally taken as**

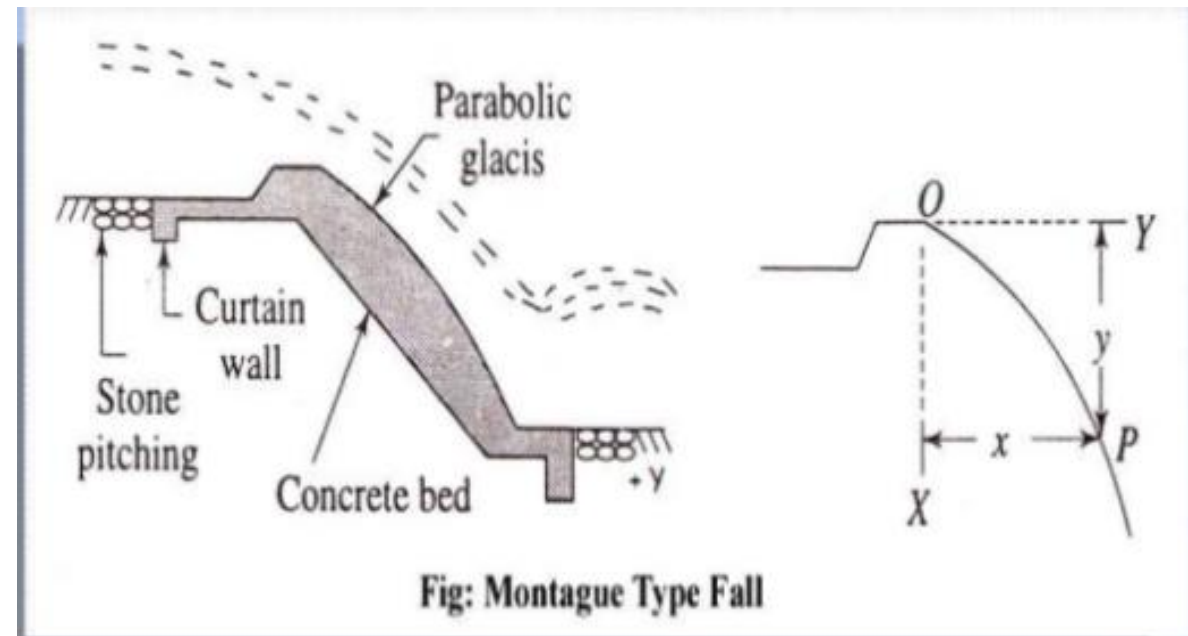
- (a)  $1.5D$**
- (b)  $0.9 D$**
- (c)  $2.0 D$**
- (d)  $2.8 D$**

**Q : 14) The device used for removing excess sediment from entering the canal at its head regulator is called**

- (a) Sediment ejector**
- (b) Sluice gate**
- (c) Sediment extractor**
- (d) Cross regulator**

**Q : 15) An Montague-type fall?**

- (a) a straight glacis is provided**
- (b) a circular glacis is provided**
- (c) a parabolic glacis is provided**
- (d) No glacis is provided**





**Q : 16) If the channel index at an irrigation outlet is  $5/3$ , 'setting' of an orifice type outlet in order to have proportionality is:**

- (a) 0.30**
- (b) 0.16**
- (c) 0.62**
- (d) 0.48**

**Q : 17) According to Kennedy, non-silting and non-scouring velocity is called:**

- (a) Optimal velocity**
- (b) Critical velocity**
- (c) Mean velocity**
- (d) Average velocity**

**Q : 18) The rise in the maximum flood level of the to its river upstream of the weir due construction is termed as**

- (a) afflux**
- (b) Retrogression**
- (c) Waterway**
- (d) freeboard**

**Q : 19) The Inglis formula discharge is normally suited for:**

- (a) Madras catchments**
- (b) former Bombay catchments**
- (c) old Hyderabad catchments**
- (d) American catchments**

i. Inglis formula

$$Q = \frac{124 A}{\sqrt{A + 10.4}}$$

Where,

Q = Design Flood (m<sup>3</sup>/s)

A = Area of Catchment in KM<sup>2</sup>

i is based on data of watershed in Western Ghats in Maharashtra



- Q : 20) A fish ladder is provided in a canal project to:**
- (a) catch the fish for commercial purposes**
  - (b) enable the fish to move freely and safely in the river**
  - (c) serve the same purpose as canal ladder**
  - (d) catch the fish in bulk for breeding purpose**

**Q : 21) According to Khosla, the exit gradient of surface flow**

- (a) Depends upon the  $b/d$  ratio**
- (b) Is independent of the depths of  $d/s$  cut off wal**
- (c) Is independent of the  $b/d$  ratio**
- (d) None of these**

**Q : 22) Bypassing the canal below the drainage is**

- (a) Super passage**
- (b) Aqueduct**
- (c) Level crossing**
- (d) None of the above**

# Types of Cross Drainage Works

- **Type I (Irrigation canal passes over the drainage)**
  - (a) Aqueduct
  - (b) Siphon Aqueduct
- **Type II (Drainage passes over the irrigation canal)**
  - (a) Super passage
  - (b) Siphon super passage
- **Type III (Drainage and canal intersection each other of the same level)**
  - (a) Level crossing
  - (b) Inlet and outlet

## Aqueduct

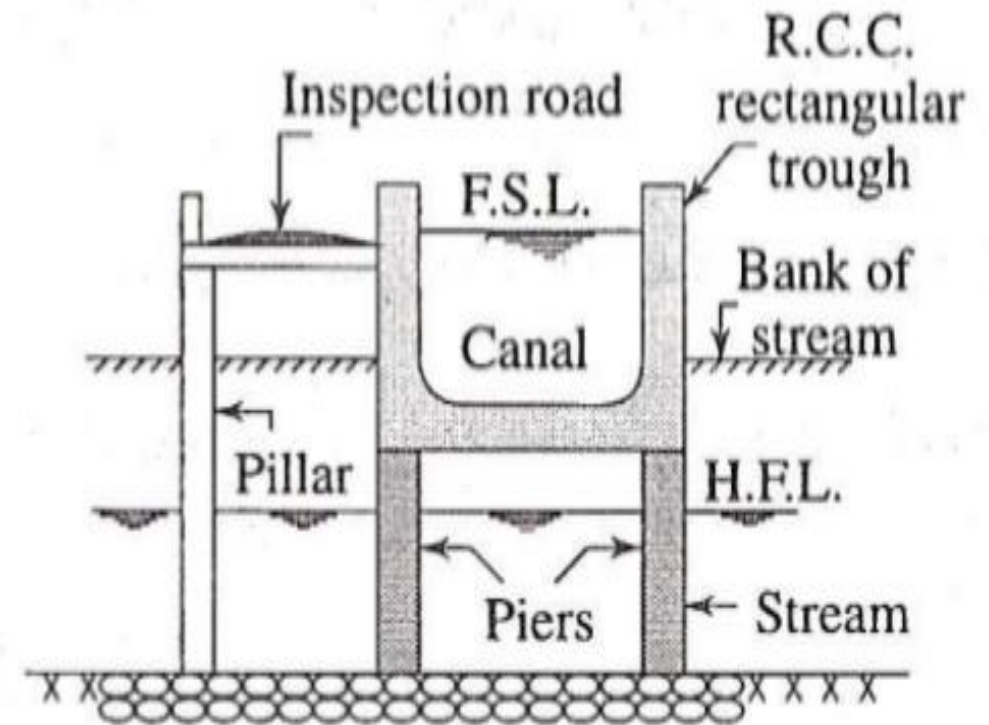


Fig: Aqueduct

# Siphon Aqueduct

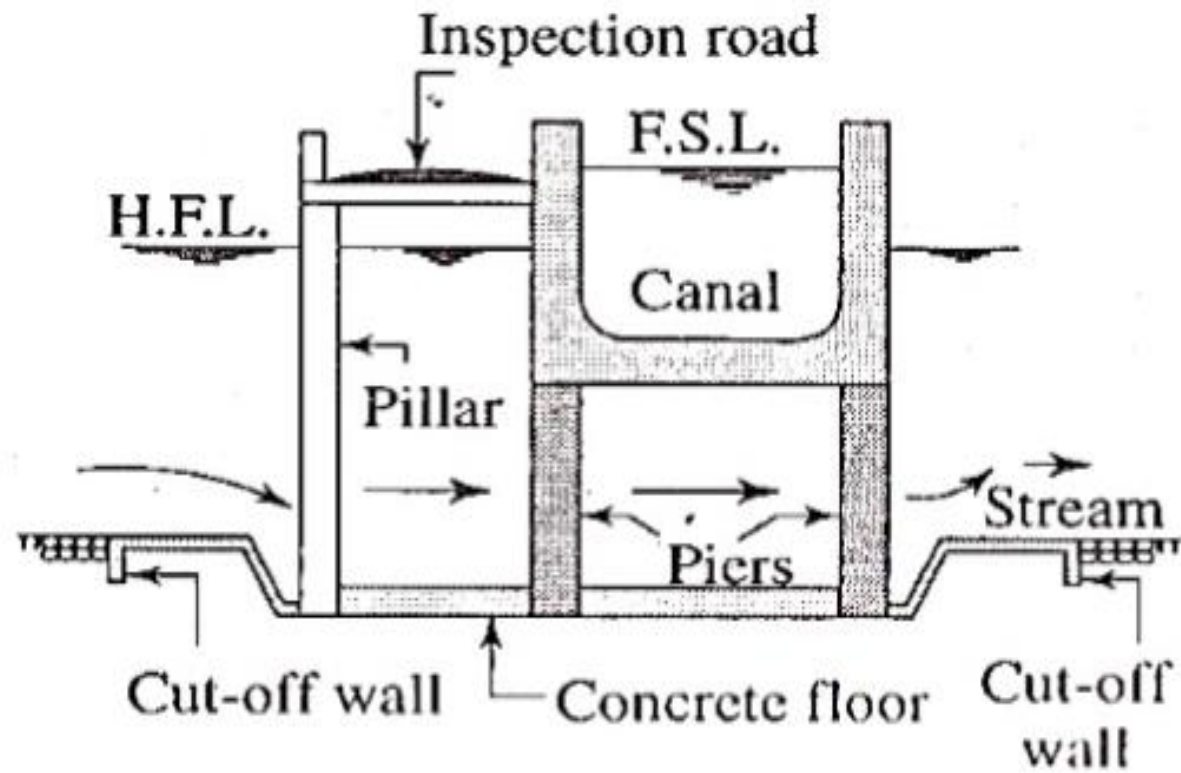


Fig: Siphon Aqueduct

# Super Passage

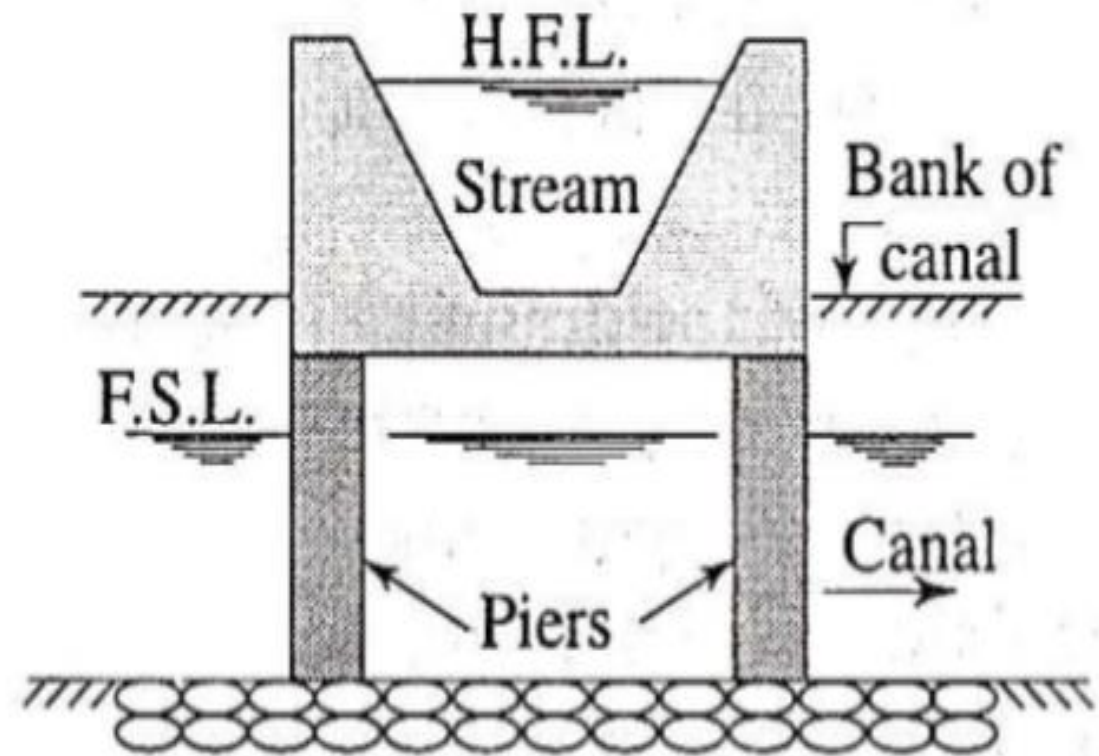


Fig: Super Passage



## Siphon Super Passage

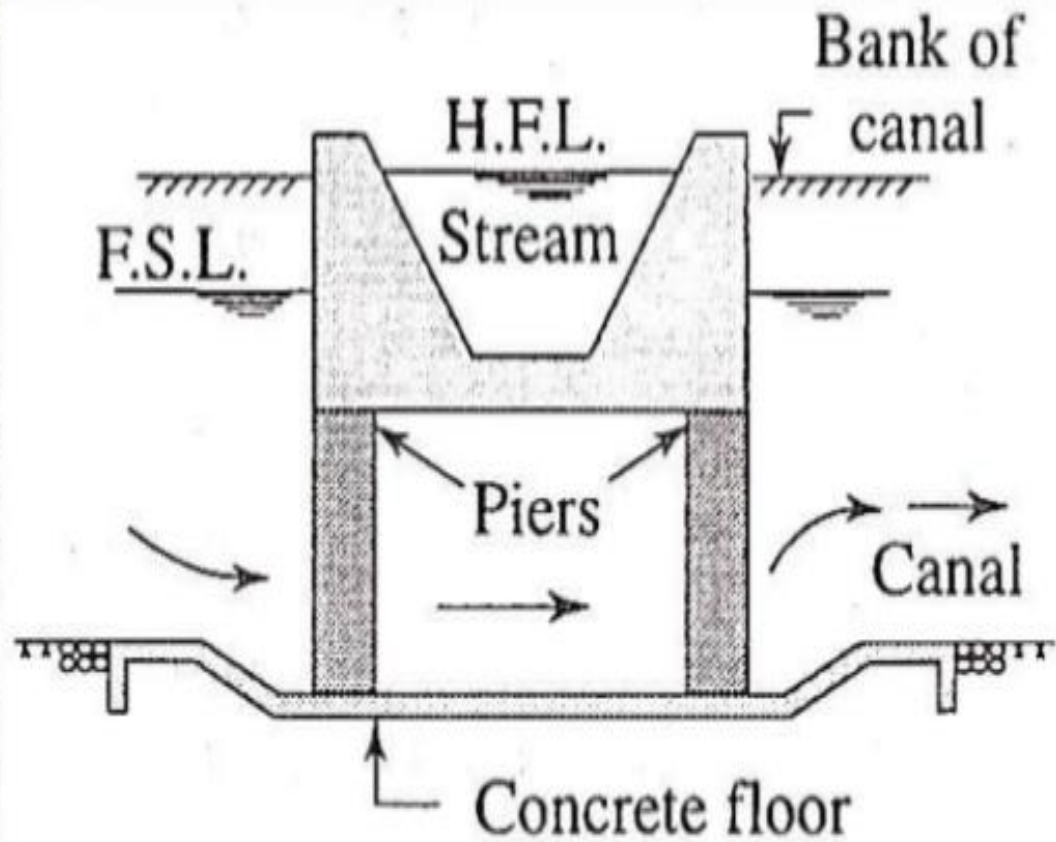


Fig: Siphon Super Passage

## Level Crossing

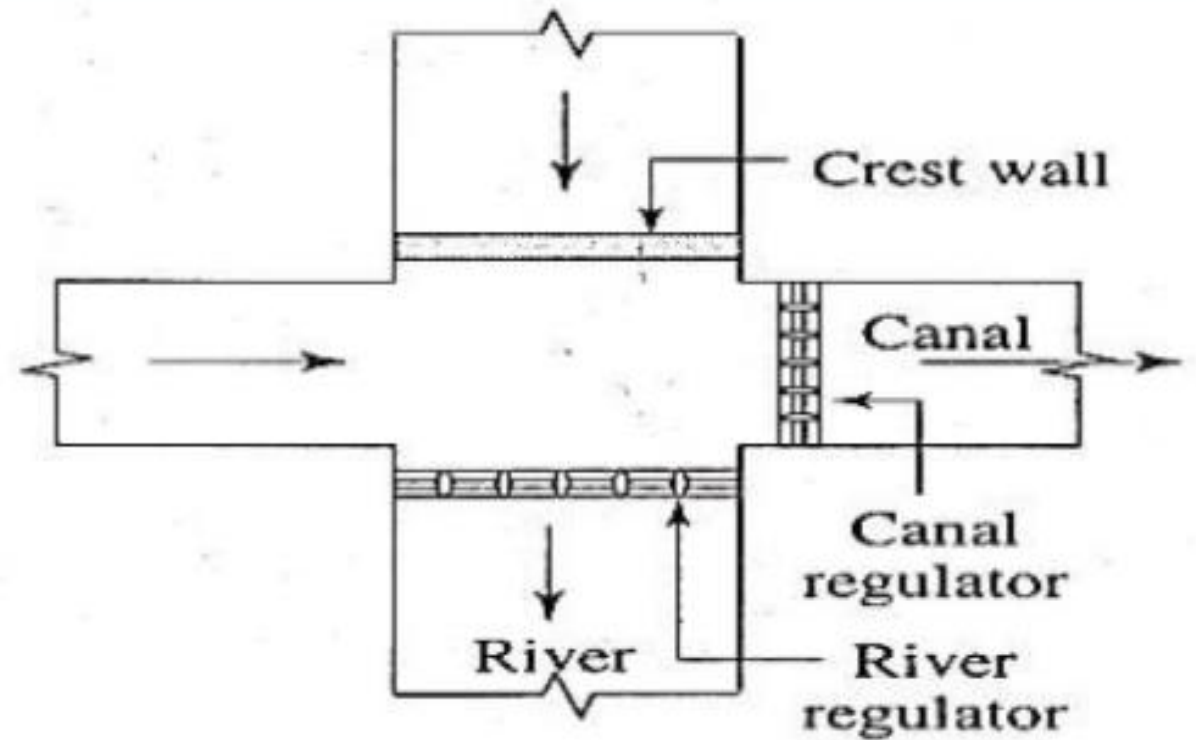


Fig: Level Crossing



**Q : 23) Aggrading rivers are**

- (a) silting rivers**
- (b) scouring rivers**
- (c) rivers in regime**
- (d) meandering rivers**

**Q : 24) Spurs are provided**

- (a) To train the flow of a river along a specified Course**
- (b) To confine the width of the river**
- (c) Argillaceous**
- (d) None of the above**

**Q : 25) The following data are available for a cross drainage project:**

ITEM	CANAL	DRAINAGE
FSL/HFL	105.00 m	104.00 m
Bed level	100.00 m	102.00 m
Discharge	80 m <sup>3</sup> /s	12 m <sup>3</sup> /s

**The most appropriate cross drainage works for this situation is:**

- (a) Siphon aqueduct**
- (b) Super passage**
- (c) Aqueduct**
- (d) Siphon**

**Q : 26) Consider the following statements:**

**An aqueduct is a cross drainage work in which**

- A. A canal is carried over the drain age channel**
- B. A drain age channel is carried over the canal**
- C. Both drainage channel and canal are at the same level**

**Which of these statements are correct?**

- (a) Only A and B**
- (b) Only A**
- (c) Only B and C**
- (d) All three**

**Q : 27) Meandering of a river is due to :**

- (a) Sediment load of streams**
- (b) Discharge and hydraulic properties of streams**
- (c) Erodibility of the bed and banks of stream**
- (d) The natural topography of the location**

**Q : 28) The difference in level between the top of a bank and supply level in a canal, is called**

- (a) Berm**
- (b) Height of bank**
- (c) Supply capacity**
- (d) Free board**



- Q : 29) What is Probable Maximum Precipitation(PMP) ?**
- (a) Projected precipitation for a 100 years return period**
  - (b) Upper limit of rainfall that is justified climatologically**
  - (c) Effective perceptible water**
  - (d) Maximum precipitation for all recorded storms**

**Q : 30) The type of rain-gauge commonly used in India for measuring rainfall is given by:**

- (a) weighing bucket type rain-gauge**
- (b) tipping bucket type rain-gauge**
- (c) floating type rain-gauge**
- (d) Simon's rain-gauge**

**Q : 31) Which precipitation is caused by natural rising of warmer lighter air in colder and denser Surroundings?**

- (a) Cyclonic precipitation**
- (b) Orographic precipitation**
- (c) Convective precipitation**
- (d) None of these**

**Q : 32) Isobar is a line which joints points of equal**

- (a) atmospheric pressure**
- (b) rainfall depth**
- (c) Humidity**
- (d) Temperature**

**Q : 33) An isohyet is a line joining points of**

- (a) Equal temperature**
- (b) Equal humidity**
- (c) Equal evaporation**
- (d) Equal rainfall**

**Q : 34) Depth-Area-Duration (DAD) curves of precipitation are drawn as**

- (a) Minimizing appropriate data points**
- (b) Maximizing envelop through the appropriate data points.**
- (c) Best fit curves through the appropriate data points**
- (d) Best fit mean straight lines through the appropriate data points**

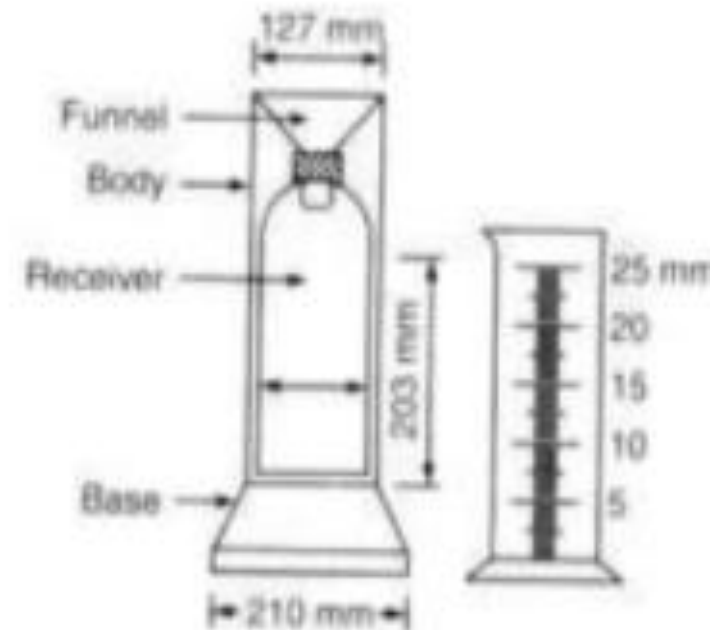


**Q : 35) The standard height of standard rain gauge is**

- (a) 10 cm**
- (b) 20 cm**
- (c) 30 cm**
- (d) 40 cm**

## SYMON'S RAIN GAUGE

- It gives the total rainfall that has occurred at a particular period.
- It essentially consists of a circular collecting area 127 mm in diameter connected to a funnel.
- The funnel discharges the rainfall into a receiving vessel.
- The funnel and the receiving vessel are housed in a metallic container.



**Q : 36) Which instrument is used to measure the precipitation in the regions of difficult and inaccessible terrains?**

- (a) Radar**
- (b) Float type rain gauge**
- (c) Weighing bucket rain gauge**
- (d) Siphon rain gauge**

**Q : 37) A 1 hour rainfall of 10 cm has return period of 50 years. The probability that 1 hour of rainfall 10 cm or more will occur in each of two successive years is:**

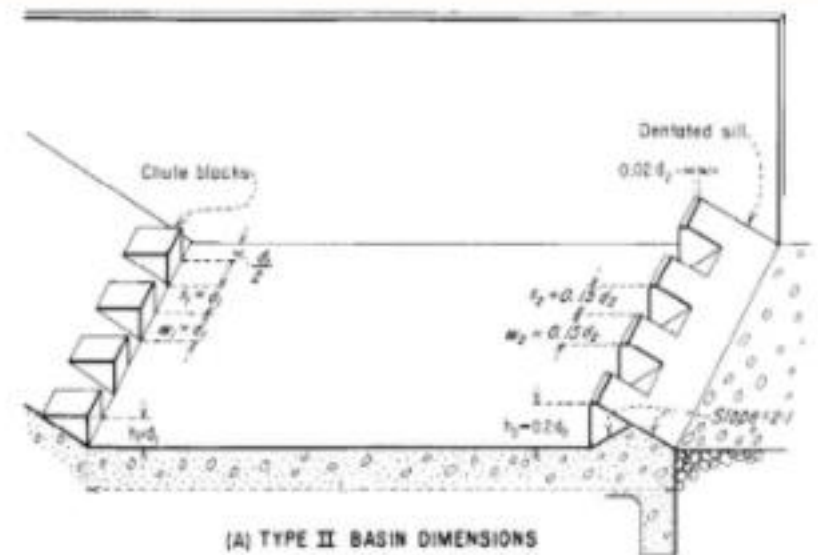
- (a) 0.04**
- (b) 0.2**
- (c) 0.02**
- (d) 0.0004**

**Q : 38) A isochrones is a line of the basin map**

- (a) joining rain gauge stations having equal rainfall duration**
- (b) joining points having equal rainfall depth in a given time interval**
- (c) joining points having equal time of travel of surface runoff to the catchments outlet**
- (d) joining points which are at equal distance from the catchments outlet.**

- Q : 39) Stilling basin is provided at the downstream floor**
- (a) increase the discharge through the regulator**
  - (b) trap silt in the downstream floor**
  - (c) reduce uplift pressure on the floor**
  - (d) dissipate energy of flow**

Type II Stilling Basin –  $Fr > 4.5$



(A) TYPE II BASIN DIMENSIONS

**Q : 40) When rain falls as water droplets of Size less than 0.5mm, so light in weight to appear as floating in air, is termed as:**

- (a) Rain**
- (b) Hail**
- (c) Dew**
- (d) Drizzle**

**Q : 41) Orographic precipitation occurs due to air masses lifted to higher altitudes by**

- (a) The density differences of air masses**
- (b) A frontal action**
- (c) The presence of mountain barriers**
- (d) Extra tropical cyclones**



**Q : 42) If 'p' is the precipitation, 'a' is the area represented by a rain gauge, and 'n' is the number of rain gauges in a catchment area, then the weighted mean rainfall is**

(a)  $\frac{\sum ap^3}{\sum a^2}$

(b)  $\frac{\sum ap}{n}$

(c)  $\frac{\sum ap}{\sum a}$

(d)  $\frac{\sum ap^5}{\sum a^3}$

**Q : 43) The Penman's evapotranspiration equation is based on**

- (a) energy balance method**
- (b) water budget method**
- (c) mass transfer method**
- (d) energy balance and mass transfer approach**

**Q : 44) Blaney - Criddle method is used to determine:**

- (a) Evaporation**
- (b) Consumptive use of crop**
- (c) Infiltration**
- (d) Interception**

**Q : 45) Aridity index (AI) is defined as (where PET = Potential Evapotranspirations, AET = Actual Evapotranspirations)**

- (a)  $4AI = (AET - PET) / AET \times 100$**
- (b)  $AI = (AET - PET) / PET \times 100$**
- (c)  $2AI = (PET - AET) / PET \times 100$**
- (d)  $AI = (PET - AET) / PET \times 100$**

**Q : 46) A rain gauge recorded hourly rainfall as 5cm, 2cm, 4cm and 3 cm for a four hour storm | respectively. If the  $\phi$  index was 3cm/hour, the | | total direct runoff from a catchments for the storm was**

- (a) 14 cm**
- (b) 3 cm**
- (c) 12 cm**
- (d) 2 cm**

**Q : 47) Muskinghum method for routing of flood**

- (a) is used for routing floods through reservoirs**
- (b) is a method of routing that uses continuity and momentum equation**
- (c) is a hydrologic method of routing floods through streams**
- (d) is one is which only energy equation is used**

**Q : 48) The relationship among the specific yield  $S_y$  and specific retention  $S_r$  and porosity  $n$  of an aquifer is-**

- (a)  $S_y = S_r + n$**
- (b)  $S_y = S_r - n$**
- (c)  $S_y = n - S_r$**
- (d)  $S_y = S_r + 2n$**

**Q : 49) The soil which can store water and allow a small quantity to flow through it over a long period is called:-**

- (a) Aquifer**
- (b) Aquitard**
- (c) Aquifuge**
- (d) Aquiclude**



**Q : 50) A rock formation which contains and readily yields water to tube wells is:**

- (a) Aquiclude**
- (b) Aquifuge**
- (c) Aquitard**
- (d) Aquifer**

**Q : 51) The Dupit formula is based on:**

- (a) Three observation wells**
- (b) One observation wells**
- (c) Two observation wells**
- (d) No observation well**

**Q : 52) The volume of water released from a storage per unit in hydraulic head in the aquifer, per unit area of the aquifer is called as:**

- (a) Transmissibility**
- (b) Storativity**
- (c) Specified yield**
- (d) Specific retention**

**Q : 53) The estimation of cumulative infiltration that may eventually become ground water recharge is defined as**

- (a) abstraction**
- (b) run-off**
- (c) water balance**
- (d) storage**

**Q : 54) If within a zone of saturation, an impervious deposit below a pervious deposit is found to support a body of saturated material, then this body of saturated material is known as-**

- (a) Plowing well**
- (b) Artesian aquifer**
- (c) Aquiclude**
- (d) Perched aquifer**

**Q : 55) The measure of the amount to which light is absorbed or scattered by the suspended material in water is called:**

- (a) Opacity**
- (b) Diffraction**
- (c) Turbidity**
- (d) None of the above**

**Q : 56) In a water treatment plant, dissolved iron and manganese can be removed from the water by-**

- (a) Aeration**
- (b) Aeration and coagulation**
- (c) Aeration and filtration**
- (d) Aeration and sedimentation**

**Q : 57) Identify the instrument which is not used to measure the turbidity of water sample.**

- (a) Nephlo turbidity meter**
- (b) Jackson turbidity meter**
- (c) Aries turbidity meter**
- (d) Baylis turbidity meter**



**Q : 58) Orthotolidine test is used for determine action of**

- (a) dissolved oxygen**
- (b) residual chlorine**
- (c) biochemical oxygen demand**
- (d) None of these**

**Q : 59) Activated carbon is used for**

- (a) disinfection**
- (b) removing hardness**
- (c) removing odours**
- (d) removing of corrosiveness**

**Q : 60) In water supply for public, threshold odour should be-**

- (a) 1**
- (b) between 1 and 3**
- (c) 3**
- (d) more than 3**

## Q : 61) Match the following

List-I	List-II
(A) Hardness	(i) Winkler method
(B) Chlorine	(ii) EDTA method
(C) DO	(iii) Orthotolidine test
(D) Chloride	(iv) Mohr method

Codes -

	(A)	(B)	(C)	(D)
(a)	(ii)	(iii)	(i)	(iv)
(b)	(ii)	(iv)	(i)	(iii)
(c)	(i)	(iii)	(ii)	(iv)
(d)	(i)	(iv)	(ii)	(iii)

**Q : 62) The commonly used indicator for measuring iron concentration in water is:**

- (a) Sodium thiosulphate**
- (b) Silver nitrate**
- (c) Eriochrome black T**
- (d) 1, 10 phenanthroline**

**Q : 63) The desirable limit of chloride content as per BIS standards in water for domestic supplies should not exceed**

- (a) 250 ppm**
- (b) 450 ppm**
- (c) 350 ppm**
- (d) 550 ppm**

**Q : 64) Critical dissolved oxygen (D.O) deficit occurs in which one of the following zones of pollution of 'oxygen sag curve' in case of self-purification of natural streams?**

- (a) Zone of recovery**
- (b) Zone of active decomposition**
- (c) Zone of degradation**
- (d) Zone of clear water**

**Q : 65) Which of the following is NOT an advantage of chloramines-ammonia treatment of water?**

- (a) It is less effective than chlorine alone**
- (b) It prevents bad taste and odour**
- (c) There is no danger of overdose**
- (d) Quantity of chlorine required is reduced especially if organic matter is present in large amounts**



**Q : 66) The water treatment required for water obtained from a deep tube well is:**

- (a) Coagulation and flocculation only**
- (b) Filtration only**
- (c) Disinfection only**
- (d) Coagulation, flocculation and filtration**

**Q : 67) EDTA titration method of determination of water sample uses an indicator which combines with hardness causing divalent cations and forms a coloured complex. The name of the indicator and the colour of the formed complex respectively are:**

- (a) Ferroin and Dark blue**
- (b) Ferroin and Wine red**
- (c) Eriochrome Black T and Dark blue**
- (d) Eriochrome Black T and Wine red**

**Q : 68) In water treatment, rapid gravity filters are remove:**

- (a) Dissolved organic substances**
- (b) Dissolved solids and gases**
- (c) Floating solids and dissolved inorganic solids**
- (d) Bacteria and colloidal solids**

**Q : 69) The area of the openings in screens should be such that the velocity of flow through them does not exceed**

- (a) 0.75 to 1 m/s**
- (b) 3 to 5 m/s**
- (c) 1.5 to 3 m/s**
- (d) 5 to 6 m/s**

**Q : 70) Match the following:**

List-I	List-II
A. Dead End System	P. It is suitable for cities with rectangular where the water mains and branches are laid in rectangles.
B. Grid Iron System	Q. The area is divided into different zones. The water is pumped into the distribution reservoir kept in the middle of each zone
C. Ring System	R. It is suitable for old towns and cities having no definite pattern of roads.
D. Radial System	S. The supply main is laid all along the peripheral roads and sub-mains branch out from the mains.

- (a) A-P. B-S. C-P, D-R  
 (b) A-Q. B-S, C-R, D-P  
 (c) A-R, B-P, C-S, D-Q  
 (d) A-S. B-R, C-P, D-Q

**Q : 71) A town is required to treat  $4.2 \text{ m}^3/\text{min}$  of raw water for daily domestic supply. Flocculating particles are to be produced by chemical particles coagulation. A Column analysis indicated that an overflow rate of  $0.2 \text{ mm/sec}$  will produce satisfactory particle removal in a settling basin at a depth of  $3.5 \text{ m}$ . The required surface area (in  $\text{m}^2$ ) for settling is:**

- (a) 200**
- (b) 420**
- (c) 350**
- (d) 840**

**Q : 72) For proper slow mixing in the flocculator of water treatment plant, the temporal mean velocity gradient  $G$  needs to be of the order of**

- (a)  $1.5 \text{ to } 10 \text{ s}^{-1}$**
- (b)  $20 \text{ to } 70 \text{ s}^{-1}$**
- (c)  $100 \text{ to } 200 \text{ s}^{-1}$**
- (d)  $250 \text{ to } 350 \text{ s}^{-1}$**

**Q : 73) Total kjeldahl Nitrogen is the**

- (a) Summation of Organic and Ammoniacal Nitrogen**
- (b) Summation of Organic and Albuminoid Nitrogen**
- (c) Summation of Organic and Free Nitrogen**
- (d) Difference of Organic and Ammoniacal Nitrogen**



**Q : 74) The purpose of recoronation after lime-soda process of water softening is:**

- (a) Removal of excess soda from water**
- (b) Removal of non-carbonate hardness**
- (c) Conversion of precipitates to soluble form**
- (d) Recovery of excess lime**

**Q : 75) The maximum depth of sedimentation tank is limited up to**

- (a) 2m**
- (b) 4m**
- (c) 3m**
- (d) 6m**

**Q : 76) In primary settling tank, suspended solids are reduced from**

- (a) 20 to 40%**
- (b) 70 to 90%**
- (c) 10 to 20%**
- (d) 40 to 70%**

**Q : 77) Effective size to be used in rapid sand gravity filter is**

- (a) 0.45 -0.70 mm**
- (b) 0.95 - 1.100 mm**
- (c) 0.15 - 0.30 mm**
- (d) 0.75 - 0.90 mm**

**Q : 78) The maximum permitted loss of head in a rapid sand filter is**

- (a) 2 m**
- (b) 4 m**
- (c) 1 m**
- (d) 3 m**

**Q : 79) For water purification in a city, it is decided to use rapid sand filter after sedimentation tanks, with the following data : Design loading rate per filter =  $200 \text{ m}^3/\text{m}^2/\text{day}$ ; Design flow rate =  $0.5 \text{ m}^3/\text{s}$ ; Surface area per filter =  $55 \text{ m}^2$ . The number of filter units required in the plant are:**

- (a) 3**
- (b) 4**
- (c) 5**
- (d) 2**

**Q : 80) For rapid sand filter, sand should have the following specifications:**

- (a) Effective size 0.1 - 0.5 mm  
Uniformity co-efficient = 2 to 4**
- (b) Effective size 0.2 - 0.5 mm  
Uniformity co-efficient = 2 to 3**
- (c) Effective size 0.45 - 0.7 mm  
Uniformity co-efficient = 1.3 to 1.7**
- (d) Effective size 0.7 - 0.9 mm  
Uniformity co-efficient = 1 to 5**

**Q : 81) The disinfection efficiency of chlorine in water treatment**

- (a) is not dependent on pH value**
- (b) is increased by increased pH value**
- (c) remains constant at all pH value**
- (d) is reduced by increased pH value**



**Q : 82) Select the correct sequence of different phases of biomass curve-**

**(a) Lag phase -> Log growth phase-> stationary phase -> endogenous phase**

**(b) Lag phase -> endogenous phase -> stationary phase -> log growth phase**

**(c) Endogenous -> Lag phase -> stationary phase -> Log growth phase**

**(d) Log endogenous phase -> Lag phase -> Endogenous phase -> stationary phase**

**Q : 83) What is food to micro-organism ratio in an aeration tank having following data?**

**Flow 1 MLD, MLSS = 2000 mg/L**

**Influent BOD<sub>5</sub> = 200 mg/L**

**Volume of aeration tank = 500 m<sup>3</sup>**

- (a) 0.20**
- (b) 0.80**
- (c) 5.00**
- (d) 1.25**

**Q : 84) The purpose of re-carbonation after water softening by the lime-soda process is the**

- (a) Removal of non-carbonate hardness in the water**
- (b) Removal of excess soda from the water**
- (c) Recovery of lime from the water**
- (d) conversion of precipitates to soluble forms in the water**

**Q : 85) Which type of drainage system Consist of laterals and sub-mains in which laterals are provided only one side of a sub-main?**

- (a) Double main system**
- (b) Grid iron layout**
- (c) Herring bone pattern**
- (d) Natural system**

**Q : 86) The valve, which allows the flow only in one direction, is known as**

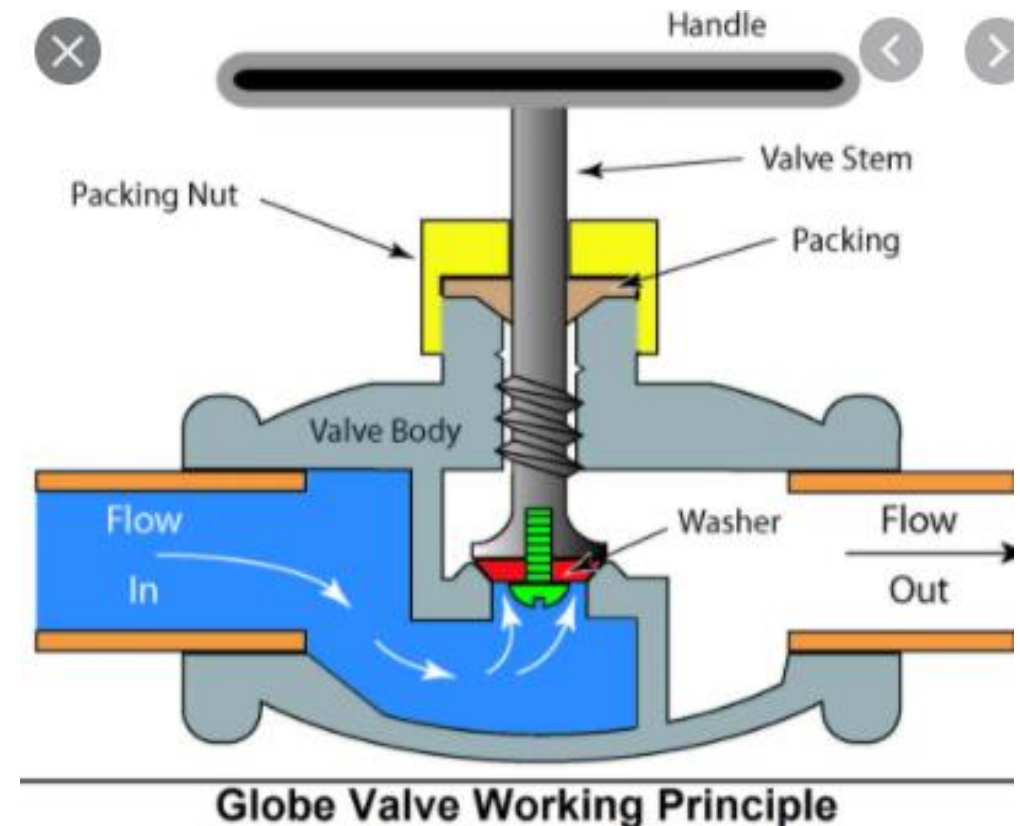
- (a) scour valve**
- (b) reflux valve**
- (c) sluice valve**
- (d) gate valve**

**Q : 87) Concrete pipes are jointed by**

- (a) collar joint**
- (b) hinge joint**
- (c) flush joint**
- (d) (a) or (b)**

**Q : 88) The type of valve which is provided to regulate the flow of after through the pipelines is**

- (a) Air valve**
- (b) Check valve**
- (c) Sluice valve**
- (d) Globe valve**



**Q : 89) The four major water supply distribution systems are**

- (a) dead end, trees, grid iron and reticulation**
- (b) dead end, trees, grid iron and circular**
- (c) trees, grid iron ring and radial**
- (d) tree, reticulation, circular and ring**



**Q : 90) Ferrule is one of the important appurtenances installed in**

- (a) combined sewerage system**
- (b) water distribution system**
- (c) house drainage system**
- (d) storm sewerage system**

**Q : 91) To have effective control of water supply different types of valves are used in the distribution system. Match the items in List 1 (Purpose to be served) with those form List 2**

List 1	List 2
M. Remove air from the pipe line	1. Gate Valve
N. Limit the flow of water to single direction	2. Pilot Valve
O. Reduce high inlet pressure to lower inlet pressure	3. Release Valve
P. Stop the flow of water in the pipeline	4. Check Valve

- (a) M -3; N-4; O-2; P-1    (b) M-3; N-2; O-1; P-4  
 (c) M-2; N-1; O-3; P-4    (d) M-4; N-2; O-3; P-1

**Q : 92) Out of the following distribution systems, which have the least number of cut-off valves?**

- (a) Ring system**
- (b) Dead end system**
- (c) Rectangular system**
- (d) Radial system**
- (e) Grid iron system**

**Q : 93) A goose neck is**

- (a) a bent flexible pipe provided between ferrule and stop-cock**
- (b) a T-shaped brass length between water meter and ferrule**
- (c) a straight G.I. pipe, service pipe and stop-cock**
- (d) a bent rigid pipe between service pipe and water-meter**

**Q : 94) The length of National Highway (km) as per Lucknow road plan is given by**

**A : Area of the country ( $\text{Km}^2$ )/75**

**B : Area of the country ( $\text{Km}^2$ )/50**

**C : Area of country ( $\text{Km}^2$ )/40**

**D : Area of the country ( $\text{km}^2$ )/25**

**Q : 95) The Nagpur road plan formula were prepared assuming a shape of:**

**A : Star and Square pattern**

**B : Star and Grid pattern**

**C : Star and Circular pattern**

**D : Star and Rectangular pattern**

**Q : 96) The road foundation for modern highways construction, was developed by:**

**A : Tresaguet**

**B : Telford**

**C : Telford and Macadam simultaneously**

**D : Macadam**

**Q : 97) IRC Committee was was appointed by the Government with M.R. Jayakar as chairman in:**

**A : 1920**

**B : 1925**

**C : 1926**

**D : 1927**



**Q : 98) Determine the safe stopping sight distance for design speed of 14 m/s for two-way traffic on a two lane road assuming the coefficient of friction as 0.28 and a reaction time of 2 seconds**

**A : 63.67 m**

**B : 61.47 m**

**C : 63.27 m**

**D : 73.57 m**

**Q : 99) Equation for the length of transition curve for plain and rolling terrain is :**

**A :  $L_s = 3.7 V^2/R$**

**B :  $L_s = 4.7 V^2/R$**

**C :  $L_s = 2.7 V^2/R$**

**D :  $L_s = 1.7 V^2/R$**

**Q : 100) The side drains are provided on both the sides of the roadway, when the road is**

**A : Along salient curve**

**B : In cutting**

**C : Along re-entrant curve**

**D : All of these**

**Q : 101) The length of summit curve on a two lane two way high way depends upon :**

**A : Allowable rate of change of centrifugal A acceleration**

**B : Coefficient of lateral friction**

**C : Required overtaking sight distance**

**D : Required stopping sight distance**

**Q : 102) IRC recommended % values of camber for different types of road surface can be arranged in descending order of following roads:**

- 1. Water bound macadam road**
- 2. Thin bituminous surface road**
- 3. Cement-concrete road**
- 4. Earth road**

**A : 4, 2, 3, 1**

**B : 3, 1, 2, 4**

**C : 4, 1, 2, 3**

**D : 3, 2, 1, 4**

**Q : 103) Grade compensation on curves is calculated as when radius of curve  $R$  in meter is given**

(a)  $\frac{30 + R}{R}$

(c)  $\frac{R}{30 + R}$

(b)  $\frac{50}{R}$

(d)  $\frac{R}{30}$

**Q : 104) Full amount of extra width of pavement, on the curve, is provided at**

**A : Beginning of the transition curve**

**B : Centre of the transition curve**

**C : Beginning of the circular curve**

**D : Centre of the circular curve**

**Q : 105) The shoulder provided along the road edge should be**

**A : Rougher than the traffic lanes**

**B : Smoother than traffic lanes**

**C : Of same colour as that of the pavement**

**D : Of very low load bearing capacity**



**Q : 106) The minimum radius of horizontal curve for N.H. on plain terrain is taken as**

**A : 90 m**

**B : 155 m**

**C : 60 m**

**D : 350 m**

**Q : 107) As per IRC, intermediate sight distance is:**

**A : Twice the stopping sight distance**

**B : Thrice the head light sight distance**

**C : Equal to head light sight distance**

**D : Twice the head light sight distance**

**Q : 108) The value of mechanical widening for a highway of 7m wide on a horizontal curve with radius of 50 m, using wheel base length 10 m is**

**A : 2.5 m**

**B : 1 m**

**C : 2 m**

**D : 0.50 m**



**Q : 1) The maximum allowable los angeles abrasion value for high quality surface course is**

**A: 50%**

**B: 30%**

**C: 25%**

**D: 80%**

**Q : 2) Most of the stones possess the specific gravity in the range of \_\_\_\_\_.**

**A: 1 to 1.5**

**B: 1.5 to 2.0**

**C: 2.4 to 2.8**

**D: 3 to 4**

**Q : 3) Maximum permissible wear in stones for road work is:**

**A: 4%**

**B: 2%**

**C: 1%**

**D: 3%**

**Q : 4) Rocks like basalt, granite without fissures are examples of-**

**A: Aquifer**

**B: Aquitard**

**C: Aquiclude**

**D: Aquifuge**



**Q : 5) Consider the following statements for selecting building stones:**

- 1. Seasoning of stones is essential and is done by soaking in water**
- 2. Specific gravity of stone is to be more than 2.7**
- 3. Porosity of stone affects its durability**
- 4. Climatic conditions decide the type of stone to be used in construction**

**Which of the above statements are correct?**

**A: 1, 2 and 3 only**

**B: 1, 2 and 4 only**

**C: 1, 3 and 4 only**

**D: 2, 3 and 4 only**

**Q : 6) As per moh's scale the hardness of quartz and topaz respectively are**

**A: 7 & 8**

**B: 8 & 7**

**C: 9 & 10**

**D: 10 & 9**

**Q : 7) Match the item in list 1 (Use of stone) with those in list 2 (Name of stone). Choose the best answer using the codes given in options.**

**A: A-3, B-1, C-2, D-4**

**B: A-1, B-3, C-4, D-2**

**C: A-4, B-3, C-1, D-2**

**D: A-4, B-2, C-1, D-3**

List 1	List 2
A. Rough stone work	1. Marble
B. Ballast	2. Chalk
C. Ornamental work	3. Granite
D. Manufacture of cement	4. Laterite

**Q : 8) For an aggregate to be called cyclopean aggregate its size must be larger than:**

**A: 75 mm**

**B: 35 mm**

**C: 55 mm**

**D: 60 mm**

**Q : 9) Shale is an example of:**

**A: Rutaceous rocks**

**B: Arenaceous rocks**

**C: Argillaceous rocks**

**D: None of the above**

**Q : 10) Jgama bricks are**

**A: Well burnt having smooth and even surface**

**B: Slightly over burnt having rough surface**

**C: Under burnt and can be easily broken**

**D: Over burnt with irregular shape**

**Q : 11) Which of the following constituent when present in excess quantity, changes the colour of the brick from red to yellow:**

**A: Alumina**

**B: Silica**

**C: Alkalies**

**D: Lime stone**

**Q : 12) The different efflorescence deposits are sulphates of-**

**A: Calcium**

**B: Sodium**

**C: Iron**

**D: Both (a) and (b)**



**Q : 13) Pallet board is used-**

**A: To make frog in the brick**

**B: To mount the mould**

**C: For table moulding of brick**

**D: None of the above**

**Q : 14) Tolerance limits for dimensions of bricks in length, width and height, respectively, for a sample of 20 bricks taken together as per IS code are:**

**A: 2000 mm, 90 mm, 90 mm**

**B: 80 mm, 40 mm, 40 mm**

**C: 100 mm, 95 mm, 95 mm**

**D: 50 mm, 20 mm, 20 mm**

**Q : 15) The compressive strength of perforated bricks should not be less than:**

**A:  $4\text{MN/m}^2$**

**B:  $5\text{MN/m}^2$**

**C:  $6\text{MN/m}^2$**

**D:  $7\text{MN/m}^2$**

**Q : 16) Which of the following statements are wholly correct regarding broken-brick aggregate usable in concretes?**

- 1. Broken-brick aggregate is obtained by crushing waste bricks and it has a density varying between  $1000 \text{ kg/m}^3$  –  $1200 \text{ kg/m}^3$**
- 2. Such aggregate is usable in concrete for foundation in light buildings, floorings and walkways.**
- 3. Such aggregate may also be used in light-weight reinforced concrete floors.**

**A: 1 and 2 only**

**B: 2 and 3 only**

**C: 1 and 3 only**

**D: 1, 2 and 3**

**Q : 17) Statement (I) : Mud bricks can be completely replaced by fly ash lime-gypsum (fal-G) bricks in building.**

**Statement (II): Useful fertile soil is used in manufacturing of mud bricks, causing high  $\text{CO}_2$  release in the atmosphere.**

**A: Both statements – I and statements-II are individually true and statement-II is the correct explanation of statement-I**

**B: Both statements-I and statements-II are individually true and statement-II is the NOT correct explanation of statement-I**

**C: Statement-I is true but statement-II is false**

**D: Statement-I is false but statement-II is true**

**Q : 18) The position of brick cut to form angles other than right angles in plan, is known as**

**A: Queen closer**

**B: Kind closer**

**C: Closer**

**D: Squinty closer**

**Q : 19) Vitrified tiles and ceramic tiles testing is done in accordance to.....**

**A: IS 15622-2006**

**B: IS 1077-1992**

**C: IS 456-1978**

**D: IS 1237-1859**

**Q : 20) The sand is mixed with lime mortar to:**

**A: Reduce cost**

**B: Reduce setting time**

**C: Improve strength**

**D: Prevent shrinkage and cracking**



**Q : 21) Consider the following statements about lime**

- 1. Calcination of limestone results in quick lime.**
- 2. Lime produced from pure variety of chalk is hydraulic**
- 3. Hydrated lime is obtained by treating quick lime with water.**

**Which of the above statements are correct?**

- A: 1, 2 and 3**
- B: 1 and 2 only**
- C: 2 and 3 only**
- D: 1 and 3 only**

**Q : 22) Which one of the following lime will be used for finishing coat in plastering and white washing?**

**A: Semi hydraulic lime**

**B: Kankar lime**

**C: Magnesium/dolomitic lime**

**D: Eminently hydraulic lime**

**Q : 23) According to Indian standards, which of the following classes of limes can be primarily be used for structural purposes?**

**A: Class C (Fat lime)**

**B: Class D (Dolomitic lime)**

**C: Class B (Semi-hydraulic lime)**

**D: Class A (Eminently hydraulic lime)**

**Q : 24) Which of the following pairs is not matched correctly?**

<b>Cement test</b>	<b>Apparatus</b>
A. Fineness	1. Nurse and blains
B. Consistency	2. Vicat
C. Soundness	3. Le-chatelier
D. Sp. Gravity	4. Lea and nurse

**Q : 25) The durability of concrete is proportional to**

**A: Sand content**

**B: Water cement ratio**

**C: Cement aggregate ratio**

**D: Aggregate water ratio**

**Q : 26) Which of the following pairs are correct related for rapid hardening cement?**

- 1. Fineness : 10%**
- 2. Final setting time : 10 hours**
- 3. Initial setting time : 30 minutes**

**The correct answer is-**

- A: 1, 2 and 3**
- B: 1 and 2**
- C: 2 and 3**
- D: 1 and 3**

**Q : 27) In the context of use of OPC and other cementations materials used in concrete, consider the following statements:**

**Statement-1: Bogue's equations are used to determine amounts of oxides of calcium, silicon, etc. in a given cement as the amounts of  $C_3S$ ,  $C_2S$ ,  $C_3A$  and  $C_4AF$  are known**

**Statement-2: Particle of both OPC and flyash are spherical in shape.**

**Which of the following is CORRECT?**

**A: Both statements are TRUE**

**B: STATEMENT-1 is FALSE and STATEMENT-2 is TRUE**

**C: STATEMENT-1 is TRUE and STATEMENT-2 is FALSE**

**D: Both statements are FALSE**

**Q : 28) The amount of tetra calcium aluminoferrite required that is responsible for flash set but generates less heat is approximately \_\_\_\_\_ of cement.**

**A: 16-20%**

**B: 8-14%**

**C: 25-40%**

**D: 5-7%**



**Q : 29) Match List-I (Type of cement) with List-II (Property/characteristics) and select the correct answer using the codes given below the lists:**

**A: 3, 2, 1, 4**

**B: 3, 1, 2, 4**

**C: 4, 1, 2, 3**

**D: 4, 2, 1, 3**

List-I (type of cement)	List-II (property/characteristics)
A. High strength Portland cement	1. Should not be used with any admixture
B. Super sulphated cement	2. Is extremely resistant to chemical attack
C. High alumina cement	3. Gives a higher rate of heat development during hydration of cement
D. Rapid hardening Portland cement	4. Has a higher content of tricalcium silicate

**Q : 30) For complete hydration of cement, the water cement ratio is:**

**A: Less than 0.25**

**B: More than 0.25 but less than 0.35**

**C: More than 0.35 but less than 0.45**

**D: More than 0.45 but less than 0.60**

**Q : 31) Loss of strength of cement stored in bags in go downs for 3 months is about**

**A: 30%**

**B: 50%**

**C: 15%**

**D: 0%**

**Q : 32) Which one of the following statements is not correct with respect to fly ash?**

**A: As part replacement of cement in the range of 15%30%, fly ash reduces the strength in the initial period, but once the pozzolanic process sets in, higher strength can be obtained.**

**B: Fly ash as a part replacement of sand has a beneficial effect on strength even at early age.**

**C: Fly ash as a part replacement of sand is economical**

**D: A simultaneous replacement of cement and fine aggregates enables the strength at a specified age to be equaled depending upon the water content.**

**Q : 33) Which one of the following stone is produced by moulding a mixture of iron slag and Portland cement?**

**A: Imperial stone**

**B: Garlic stone**

**C: Ransom stone**

**D: Victoria stone**

**Q : 34) Initial setting cement is caused due to**

**A:  $3 \text{ CaO} \cdot \text{SiO}_2$**

**B:  $2 \text{CaO} \cdot \text{SiO}_2$**

**C:  $3 \text{ CaO} \cdot \text{Al}_2\text{O}_3$**

**D:  $4 \text{ CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$**

**Q : 35) The minimum period before stripping the framework for props to slabs spanning 6 m is**

**A: 16-24 h**

**B: 3 days**

**C: 7 days**

**D: 21 days**

**E: 14 days**

**Q : 36) In the context of air entrainment in fresh concrete consider the following statements:**

**Statement-1: Air entrainment is required in cases when concrete is likely to be subjected to alkali aggregate reaction.**

**Statement-2: Air entrainment has the effect of increasing the workability of concrete at the same unit water content.**

**Which of the following is CORRECT?**

**A: Statement-1 is TRUE and Statement-2 is FALSE**

**B: Both statements are FALSE**

**C: Both statements are TRUE**

**D: Statement-1 is False and statement-2 is TRUE**



**Q : 37) The value of pulse velocity of good quality concrete should be:**

**A: More than 3.5 km/s**

**B: Less than 3.5 km/s**

**C: Less than 2.0 km/s**

**D: None of the above**

**Q : 38) Which of the following is not a test for measuring workability of concrete?**

**A: Slump test**

**B: Flow test**

**C: Std. consistency test**

**D: Kelly ball test**

**Q : 39) Fineness modulus is-**

**A: The ratio of fine aggregates to coarse aggregate**

**B: The ratio of fine aggregates to total aggregate**

**C: An index which gives the mean size of the aggregates used in a mix**

**D: None of the above**

**Q : 40) Which of the following aggregate should not be used in the manufacture of concrete as it exhibits alkali-aggregate reaction?**

**A: Basalt**

**B: Granite**

**C: Limestone**

**D: All of these**

**Q : 41) As per IS code of practice, concrete should be cured at:**

**A: 35<sup>0</sup>C**

**B: 25<sup>0</sup>C**

**C: 27<sup>0</sup>C**

**D: 50<sup>0</sup>C**

**Q : 42) As per IS code provision the tolerance on placing of reinforcements in a structural member having effective depth more than 200 mm shall be:**

**A:  $\pm 20$  mm**

**B:  $\pm 15$  mm**

**C:  $\pm 10$  mm**

**D:  $\pm 25$  mm**

**Q : 43) Match List-I (Admixtures) with List-II (Chemicals) and select the correct answer using the options given below:**

**A: 2, 4, 1, 3**

**B: 1, 3, 4, 2**

**C: 3, 4, 1, 2**

**D: 3, 4, 2, 1**

List-I	List-II
P. Water-reducing admixture	1. Sulphonated melanin formaldehyde
Q. Air-entraining agent	2. Calcium chloride
R. Super plasticizer	3. Lignosulphonate
S. Accelerator	4. Neutralized vinsol resin

**Q : 44) Why is super plasticizer added to concrete?**

- 1. To reduce the quantity of mixing water**
- 2. To increase workability**
- 3. To reduce the quantity of cement**
- 4. To increase early age strength**

**A: 1 and 4**

**B: 1, 2, and 4**

**C: 3, and 4**

**D: 1, 2, 3 and 4**



**Q : 45) The development of hair-like cracks usually in an irregular pattern caused by the shrinkage of concrete surface is called as**

**A: Blistering**

**B: Cracking**

**C: Crazing**

**D: Laitance**

**E: Grinning**

**Q : 46) The total number of test strength of samples required to constitute an acceptable record for calculation of standard deviation for each grade of concrete shall not be less than-**

**A: 15**

**B: 21**

**C: 28**

**D: 30**

**Q : 47) In handling air-entraining admixtures the beneficial amount of entrained air depends upon certain factors like**

- 1. Type and quantity of air-entraining agent**
- 2. Water-cement ratio of the mix**
- 3. Strength of aggregates**
- 4. Extent of compaction of concrete**

**A: 1, 2 and 3 only**

**B: 1, 2 and 4 only**

**C: 1, 3 and 4 only**

**D: 1, 2, 3 and 4**

**Q : 48) Which of the following tests compared the dynamic modulus of elasticity of samples of concrete?**

**A: Compression test**

**B: Ultrasonic pulse velocity test**

**C: Silt test**

**D: Tension test**

**Q : 49) The shingle is a**

**A: Air weathered rock**

**B: Crushed granite**

**C: Water bound pebbles**

**D: Decomposed laterite**

**Q : 50) The stress strain curve of concrete in compression is obtained by testing the cylindrical specimen under**

**A: Uniform rate of strain**

**B: Uniform rate of stress**

**C: Constant stress condition**

**D: Constant strain condition**

**Q : 51) Which of the following is NOT an effect of fly ash on cement concrete?**

**A: Reduces permeability of concrete**

**B: Increases the heat of hydration of concrete**

**C: Reduces the amount of air entrainment**

**D: Slightly improves resistance to sulphate attack**

**Q : 52) For a normal RCC work, the slump of concrete should be in the range of**

**A: 0-25 mm**

**B: 25-50 mm**

**C: 80-150 mm**

**D: 50-125 mm**



**Q : 53) Consider the following methods of preservation of timber**

- 1. Pressure application**
- 2. Brush application**
- 3. Dipping**
- 4. Open tank application**

**The correct sequence of these methods in the increasing order of their effectiveness is**

- |                      |                      |
|----------------------|----------------------|
| <b>A: 1, 3, 4, 2</b> | <b>B: 3, 4, 2, 1</b> |
| <b>C: 2, 3, 4, 1</b> | <b>D: 4, 2, 1, 3</b> |

**Q : 54) Timber can be made more fire resistant by-**

**A: Dipping and steeping process**

**B: Sir Abel's process**

**C: Seasoning**

**D: Hot and cold open tank treatment**

**Q : 55) A thin layer of fresh sap laying between sap wood and inner bark is:**

**A: Heart wood**

**B: Pith**

**C: Outer bark**

**D: Cambium layer**

**Q : 56) A timber whose thickness is less 50 mm and breadth is greater than 150 mm is called:**

**A: Balk**

**B: Board**

**C: Plank**

**D: Batten**

**Q : 57) The defect caused due to over-maturity and poor ventilation of the tree is called:**

**A: Knot**

**B: Rind galls**

**C: Foxiness**

**D: Heat shake**

**Q : 58) Shear strength of timber depends on which one of the following?**

**A: Lignin with fibers**

**B: Medullary rays**

**C: Heartwood**

**D: Sapwood**

**Q : 59) The ability of material to endure alternate wet and dry conditions for a long period without considerable deformation of material**

**A: Water resistance**

**B: Weathering resistance**

**C: Permeability**

**D: Water retentivity**

**Q : 60) The process designed to suit the moisture content of timbers to the conditions and purposes for which it is to be used is called as \_\_\_\_\_.**

- A: Laminating**
- B: Conditioning**
- C: Seasoning**
- D: Dressing**



**Q : 61) Paints with white lead base are suitable for painting of:**

**A: Wood work**

**B: Iron work**

**C: Both wood and iron work**

**D: None of the above**

**Q : 62) How much is the convering capacity of cement paint?**

**A: About 18 m<sup>2</sup>/kg per coat**

**B: About 20 m<sup>2</sup>/kg per coat**

**C: About 12 m<sup>2</sup>/kg per coat**

**D: About 4 m<sup>2</sup>/kg per coat**

**Q : 63) When the final coat of paint has not sufficient the background is clearly seen. This is known as**

**A: Grinning**

**B: Bloom**

**C: Wrinkling**

**D: Flaking**

**Q : 64) Which of the following defects is caused by vaporization of entrapped moisture of solvents in a painted surface?**

**A: Saponification**

**B: Blistering**

**C: Blooming**

**D: Cissing**

**Q : 65) Match list I with II in question and select the correct answer by using code given below:**

**A: 1, 2, 3, 4**

**B: 3, 2, 4, 1**

**C: 4, 1, 2, 3**

**D: 1, 3, 2, 4**

List I	List II
A. Aluminum paint	1. For resisting corrosive reaction
B. Anti corrosive paint	2. For paining iron work under water
C. Bituminous paint	3. For paining surfaces exposed to high temperature
D. Cellulose paint	4. For paining oil storage tank

**Q : 66) Vanadium steel is normally used in the manufacturing of**

**A: Axle and springs**

**B: Ball bearings**

**C: Magnets**

**D: Railway switches and crossings**

**Q : 67) One of the following is not a principle related to thermal insulation:**

**A: Thermal resistance is directly proportional to thickness of a material**

**B: Provision of air gap plays an important role in thermal insulation**

**C: Transfer of heat from outside to inside increases**

**D: Thermal resistance of a building depend on orientation also**

**Q : 68) Shielding glass consists high content of**

**A: Lead oxide**

**B: Manganese dioxide**

**C: Tin oxide**

**D: Cobalt oxide**



**Q : 69) Following is not the process involved in the fabrication of articles of plastic**

**A: Laminating**

**B: Blowing**

**C: Calendaring**

**D: Tempering**

**Q : 70) Normally the tensile strength of glass varies between**

**A: 28 kg/cm<sup>2</sup> to 56 kg/cm<sup>2</sup>**

**B: 280 kg/cm<sup>2</sup> to 560 kg/m<sup>2</sup>**

**C: 2800 kg/cm<sup>2</sup> to 5600 kg/cm<sup>2</sup>**

**D: 28000 kg/cm<sup>2</sup> to 5600 kg/cm<sup>2</sup>**

**Q : 71) The plinth area of building not includes**

**A: Area of a wall at the floor level**

**B: Internals shaft for sanitary installations upto 2 sqm in area**

**C: Lift and wall including landing**

**D: Area of the cantilevered porch**

**Q : 72) Capitalized value of a property is given by**

**A: Net annual rent  $\times$  year's purchase**

**B: Net annual rent  $\times$  sinking fund**

**C: Gross annual rent  $\times$  year's purchase**

**D: Gross annual rent  $\times$  2**

**Q : 73) Sinking fund is:**

**A: The fund for rebuilding a structure when its economic life is over**

**B: Raised to meet maintenance costs**

**C: The total sum to be paid to the municipal authorities by the tenants.**

**D: A part of the money is kept in reserve for providing additional structures and structural modifications.**

**Q : 74) In case of big projects, a certain amount to the extent of about 1.5% to 2% the estimated cost is provided in the estimate as**

**A: Work charged establishment**

**B: Revised estimates**

**C: Supplementary estimate**

**D: Annual estimate**

**Q : 75) The bill to be used for making a single payment for a work is**

**A: First and final bill**

**B: Running account bill**

**C: Lump-sum contract bill**

**D: None of these**

**Q : 76) Calculate the quantity of earth work by mid ordinate method, for 200 m length of a portion of road in an uniform ground. The heights of banks at the two ends being 1.00 m and 2.00 m. The formation width is 10 m and side slope 2:1**

**A: 3800 Cu.m**

**B: 3900 Cu.m**

**C: 3950 Cu.m**

**D: 400 Cu.m**



**Q : 77) The purchase price of a machine is Rs. 25,000. The machine has a working life of 35,000 hours and at the end of the working life, the machine can be sold for Rs. 7,500 as scrap. The depreciation charge on the machine is constant. How much will be the per hour depreciation change on this machine?**

**A: Rs. 0.21**

**B: Rs. 0.50**

**C: Rs. 0.72**

**D: Cannot be determined based on the given data**

**Q : 78) The correct match of column I (type of contract) with Column II (type of works where they can be used) is**

**A: P-1, Q-3, R-2**

**B: P-3, Q-2, R-1**

**C: P-2, Q-1, R-3**

**D: P-3, Q-1, R-2**

Column I	Column II
P. Unit price contract	1. Limited work but exact quantities are known
Q. Lump-sum contract	2. Quality of each item of work is known but exact quantities are unknown
R. Percentage contract	3. Quality as well as quantity of each item of work are unknown

**Q : 79) During the construction period, price variation clause in contracts cater to**

**A: Variation in cost of materials and labour elements**

**B: Rate of inflation**

**C: Variation in total cost of the project on an adhoc basis**

**D: Increase in rates of only important materials**

**Q : 80) The system in which the owner acquires land, prepare drawings & estimation and the contractor execute the work, operate and collect fee from the users till the full cost is realized, is known as:**

**A: Rate contract**

**B: BOT**

**C: Lumpsum contract**

**D: Turnkey**

**Q :81) Match List-I with List-II and select correct answer:**

**A: 1, 2, 3, 4**

**B: 3, 4, 2, 1**

**C: 4, 3, 2, 1**

**D: 4, 3, 1, 2**

List-I	List-II
A. Excavation and moving	1. Derrick
B. Pure excavation	2. Dump truck
C. Pure transportation	3. Power shovel
D. Pure hoisting	4. Scrapers

**Q : 82) The capacity of a “28 S type” concrete mixer is  $0.9 \text{ m}^3$ . For mixing one cubic meter of concrete, the quantity of cement required is 5.5 bags. In order to avoid fractional usage of cement bags, the volume of concrete ( $\text{m}^3$ ) to be mixed per batch will be:**

**A: 0.78**

**B: 0.49**

**C: 0.73**

**D: 0.44**

**Q : 83) The number of cement bags required in making plane cement concrete flooring in an area of size  $3\text{ m} \times 3\text{ m}$  and 100 mm thick using cement concrete of mix 1 : 3 : 6 is:**

**A: 4 bags**

**B: 44 bags**

**C: 2.6 bags**

**D: 26 bags**

**Q : 84) As per IS 1200, in the measurement of brickwork, no deductions shall be made for:**

- A: Opening up to 1.1 sq. m in area**
- B: Opening up to 1.01 sq. m in area**
- C: Opening up to 1.001 sq. m in area**
- D: Opening up to 1.0 sq. m in area**



**Q : 85) In mass Haul diagram (mass diagram), the term haul represents the:**

**A: Sum of the product of each load by its distance**

**B: Distance at any time from the working face of an excavation to the tip end of the embankment**

**C: Distance from the centre of gravity of a cutting to that of tipped material**

**D: Horizontal distance through which the load is shifted**

**Q : 86) Group B buildings are:**

**A: Residential**

**B: Institutional**

**C: Assembly**

**D: Educational**

**Q : 87) Consider the below statements with respect to large hauled container system:**

- (a) Reduces handling time**
- (b) Reduces un slightly accumulations**

**Identify the correct statement.**

- A: Both statements are false**
- B: Both statement are true**
- C: Statement (a) is true (b) is false**
- D: Statement (b) is true (a) is false**

**Q : 88) In plaster works measurement deduction for opening less than ..... is not made as per mode of measurement.**

**A: 1 sq. mt**

**B: 1.5 sq. mt**

**C: 0.5 sq. mt**

**D: 2 sq. mt**

**Q : 89) Clamshell is used for**

**A: Vertical excavation**

**B: Rock drilling**

**C: Pressure grouting**

**D: Trench construction**

**Q : 90) If the cross-sectional areas of an embankment at 30 m intervals are 20, 40, 60, 50 and 30 sq. m respectively, the volume of the embankment of the bass of prismoidal rule is**

- A: 5300 m<sup>3</sup>**
- B: 8300 m<sup>3</sup>**
- C: 9300 m<sup>3</sup>**
- D: 10300 m<sup>3</sup>**

**Q : 91) Security deposit is**

**A: Deposited at the time of filling tender**

**B: Deposited by the contractor whose tender is accepted**

**C: Deposited at the time of opening tenders**

**D: Deposited for fair competition**

**Q : 92) Identify correct statements from the following:**

- 1. Centre line method is the most common method for calculating the quantities of walls.**
- 2. Centre line method is suitable for determining quantities of walls which are curved in plan.**
- 3. Out-to-out and in-to-in method is the most common method for calculating quantities of walls.**

**A: 1 and 2**

**B: 1 and 3**

**C: 1 only**

**D: 2 and 3**



**Q : 93) Which are some of the factors to be considered while designing site layout?**

- 1. Construction sequence**
- 2. Quantity of materials to be stored**
- 3. Parking of workers**
- 4. Sanitary facilities**
- 5. Soil conditions**

**A: 1, 2, 3 and 4**

**B: All of the above**

**C: 1 and 2**

**D: 1, 2 and 5**

**Q : 94) Deduction is made in the brick masonry for the opening exceeds:**

**A: 0.10 sq.m**

**B: 0.5 sq.m**

**C: 0.35 sq.m**

**D: 0.25 sq.m**

**Q : 95) The unit of measurement for mass concrete is usually:**

**A: Cubic meter**

**B: Square meter**

**C: Metric tons**

**D: Linear meter**