

52. A reservoir which retains excess supplies during periods of peak flows and release them gradually during low flows :
- (A) Retarding reservoir (B) Flood control reservoir  
(C) Distribution reservoir (D) Conservation reservoir
53. A plot of cumulative rain versus time is called :
- (A) Mass curve (B) Hydrograph  
(C) Hyetograph (D) DAD curve
54. Example of subsurface source of water :
- (A) River (B) Ponds  
(C) Spring (D) Streams
55. The standard unit of turbidity of water is that which is produced by 1 mg of \_\_\_\_\_ dissolved in one litre of distilled water.
- (A) Finely divided silica (B) Platinum cobalt  
(C) Potassium permanganate (D) Formazin
56. A compound that imparts temporary hardness to water :
- (A) Calcium sulphate (B) Magnesium chloride  
(C) Calcium nitrate (D) Magnesium carbonate
57. Which of the following is incorrect regarding a slow sand filter :
- (A) Incoming water should not be treated by coagulants  
(B) Depth of water should be double the depth of filter sand  
(C) Loss of head is limited to a maximum of 1.2 m  
(D) Cleaning should not be done by back washing
58. A method of disinfection of drinking water :
- (A) Treatment with excess lime (B) Treatment with ozone  
(C) Electra-Katadyn process (D) All the above
59. BOD of effluent from secondary biological treatment of sewage is :
- (A) 0 to 5% of the original (B) 5 to 10% of the original  
(C) 25 to 40% of the original (D) 50 to 60% of the original



60. During sludge digestion :
- (A) Acidity condition should prevail (B) Alkaline condition should prevail  
(C) Acidity or alkaline condition (D) Neutral condition should prevail
61. The disposal method in which solid waste is heated in an oxygen free atmosphere and reduced to gaseous, liquid and solid fractions :
- (A) Pyrolysis (B) Pulverisation  
(C) Incineration (D) Composting
62. The best system of plumbing of drainage work in building is :
- (A) One pipe system  
(B) Two pipe system  
(C) Single stack system  
(D) Partially ventilated single stack system
63. Water content of soil is 0.15, Degree of saturation 70%, void ratio is 0.61, then specific gravity is :
- (A) 2.85 (B) 2.13  
(C) 2.50 (D) 2.17
64. The numerical difference between liquid limit and plastic limit is :
- (A) Liquidity index (B) Plasticity index  
(C) Consistency index (D) Flow index
65. The intensity of vertical stress at depth  $z$  below a concentrated load  $Q$ , by Boussinesq equation is :
- (A)  $\sigma_z = 0.5775 \frac{Q}{z^2}$  (B)  $\sigma_z = 0.4775 Qz^2$   
(C)  $\sigma_z = 0.4775 \frac{Q}{z^2}$  (D)  $\sigma_z = 0.5775 Qz^2$
66. The volumetric strain per unit increase in effective stress of soil is defined as :
- (A) Compression index (B) Volume compressibility  
(C) Coefficient of compressibility (D) Consolidation
67. Failure of a finite slope along a surface that intersects the slope above the toe :
- (A) Compound failure (B) Base failure  
(C) Slope failure (D) Toe failure



68. The height to diameter ratio of cylindrical specimen for uniaxial compression test of concrete is :  
 (A) 0.50 (B) 0.30  
 (C) 0.25 (D) 2.00
69. Which of the following is a measure of dynamic modulus of elasticity of concrete?  
 (A) Tangent modulus (B) Secant modulus  
 (C) Initial tangent modulus (D) All the above
70. The partial safety factor for strength of concrete for service ability limit state is :  
 (A) 1.00 (B) 1.10  
 (C) 1.15 (D) 1.25
71. When reinforcement bars placed short of their required length need to be extended, we use :  
 (A) anchorages (B) standard bends and hooks  
 (C) development length (D) splices
72. The ultimate moment of resistance by LSM for a beam with  $b = 300$  mm,  $d = 550$  mm, M20 concrete, reinforced with 4-25mm dia Fe250 bars :  
 (A) 146 kNm (B) 194 kNm  
 (C) 200 kNm (D) 210 kNm
73. Relation between Young's modulus and cube strength of concrete is :  
 (A)  $E_c = 500\sqrt{f_{ck}}$  (B)  $E_c = 5700\sqrt{f_{ck}}$   
 (C)  $E_c = 5000\sqrt{f_{ck}}$  (D)  $E_c = 700\sqrt{f_{ck}}$
74. The minimum area of tension reinforcement required in a rectangular beam section  $200$  mm  $\times$   $400$  mm if Fe415 steel is used at 25 mm effective cover :  
 (A)  $154 \text{ mm}^2$  (B)  $180 \text{ mm}^2$   
 (C)  $164 \text{ mm}^2$  (D)  $193 \text{ mm}^2$
75. Effective span of a simply supported beam is :  
 (A) Face to face distance of supports (B) Clear span + effective depth  
 (C) Clear span - effective depth (D) Clear span + effective depth / 2
76. Minimum grade of concrete for pre tensioned pre-stressed concrete :  
 (A) M20 (B) M30  
 (C) M40 (D) M45