

68. Name the structure carrying discharge of a natural stream across a canal intercepting the stream :
- (A) Gallery (B) Cut off pile
(C) Cross drainage work (D) Sluice
69. Which among the following is torsional rigidity?
- (A) product of rigidity modulus and moment of inertia
(B) product of rigidity modulus and polar moment of inertia
(C) product of rigidity modulus and angle of twist
(D) product of torque and radius of shaft
70. During setting and hardening of cement concrete, hydration of which among the following contributes to the progressive strength of concrete?
- (A) C_3S (B) C_3A
(C) C_4AF (D) C_2S
71. What is the polar moment of inertial of a circle of diameter D?
- (A) $\frac{\pi D^4}{64}$ (B) $\frac{\pi D^4}{32}$
(C) $\frac{\pi D^4}{128}$ (D) $\frac{\pi D^4}{16}$
72. What is called, the time in hours taken by rainwater that falls at the farthest point to reach the outlet of a catchment?
- (A) effective duration (B) basin lag
(C) time of concentration (D) recession time
73. Name the short sections of wood or steel, which are fixed on principal rafter of trusses to support purlins :
- (A) ridge piece (B) wall plate
(C) eaves board (D) cleat
74. Name the area to be irrigated by a dam :
- (A) ayacut (B) catchment area
(C) reservoir (D) upstream side
75. Among the following methods for computing average precipitation (or rainfall) in which method the area of the basin is not taken into account?
- (A) Isohyetal method (B) Thiesson polygon method
(C) Arithmetic average method (D) None of these

85. In which direction, resultant force will shift by providing a top width for roadway and free board in elementary profile of a gravity dam, for full reservoir condition?
- (A) shift towards top (B) shift towards toe
(C) shift towards heel (D) no shift at all
86. Two simply supported beams A and B of same width have identical loading. What is the ratio $\frac{\text{strength of beam A}}{\text{strength of beam B}}$ if beam A has depth double that of beam B?
- (A) 2 (B) 4
(C) 1/2 (D) 1/4
87. What is the least count of a transit theodolite?
- (A) 20 minutes (B) 30 minutes
(C) 60 seconds (D) 20 seconds
88. A steel rod of length 20 m at 30°C is heated upto 40°C. What is the temperature stress developed if the expansion is prevented? Given, $\alpha = 12 \times 10^{-6}$ per °C, $E = 2 \times 10^5$ N/mm²
- (A) 2.4 N/mm² (B) 24 N/mm²
(C) 240 N/mm² (D) 0.24 N/mm²
89. What will be the deflection at the centre of a simply supported beam of rectangular cross section if the depth is doubled, for the same load W?
- (A) $\frac{1}{2}$ of first case (B) $\frac{1}{6}$ of first case
(C) $\frac{1}{8}$ of first case (D) $\frac{1}{4}$ of first case
90. If K is the bulk modulus, E is the Young's modulus and N is the shear modulus then, which is the relation to find out Poisson's ratio $\left(\frac{1}{m}\right)$?
- (A) $\frac{9KN}{N + 3K}$ (B) $\frac{3K - 2N}{6K + 2N}$
(C) $2N\left(1 + \frac{1}{K}\right)$ (D) $3K\left(1 - \frac{2}{N}\right)$
91. If three coplanar, concurrent forces are acting at a point are in equilibrium, of which two of them are collinear, then what is the magnitude of third force which is acting at an angle θ with other two forces?
- (A) zero (B) algebraic sum of other two forces
(C) vector sum of other two forces (D) none of the above

92. Where is the keystone of an arch being placed?
 (A) extrados (B) crown
 (C) intrados (D) springing line
93. What is measured using a venturimeter?
 (A) velocity (B) pressure
 (C) viscosity (D) discharge
94. What will be the elongation of a prismatic bar of length L , cross sectional area A , hanging vertically under its own weight W ?
 (A) $\frac{WL}{AE}$ (B) $\frac{WL}{3AE}$
 (C) $\frac{WL}{2AE}$ (D) $\frac{WL}{4AE}$
95. In a hydro electric scheme which of the following is used to carry water from storage reservoir to the power house?
 (A) forebay (B) intake structure
 (C) draft tube (D) penstocks
96. What is the nominal size of standard brick?
 (A) 19 cm \times 9 cm \times 9 cm (B) 20 cm \times 10 cm \times 10 cm
 (C) 22 cm \times 11.5 cm \times 7.5 cm (D) 20 cm \times 10 cm \times 5 cm
97. What will be the elementary profile of a gravity dam?
 (A) rectangular in section (B) trapezoidal in section
 (C) polygon with six sides (D) triangular in section
98. Where the tension steel is provided in a two way slab?
 (A) only at top (B) only at bottom
 (C) at top and bottom (D) at corners
99. What is a graph showing variations of discharge with time at a particular point of a stream?
 (A) Unit hydrograph (B) Hyetograph
 (C) Strange's run off curve (D) Hydrograph
100. For a redundant frame if number of members is m and number of joints is j then which of the following relations will be satisfied?
 (A) $m > (2j - 3)$ (B) $m < (2j - 3)$
 (C) $m < 2(j - 3)$ (D) $m > 2(j - 3)$