

- 1 001. A first class brick immersed in water for 24 hours, should not absorb water (by weight) more than  
(A) 10% (B) 15%  
• (C) 20% (D) 25%
002. The decay of timber caused by alternate wetting and drying is called  
(A) foxiness (B) dry rot  
(C) wet rot (D) druxiness
003. The compound of Portland Cement which reacts immediately with water and also sets first is  
• (A) Tri-calcium silicate (B) Di-calcium silicate  
(C) Tri-calcium aluminate (D) Tetra-calcium alumino ferrite
004. Wrought iron contains carbon about  
(A) 0.25% • (B) 12%  
(C) 10% (D) 8%
- 1 005. The oil which is most widely used vehicle for all ordinary painting work is  
(A) tung oil • (B) linseed oil  
(C) poppy oil (D) nut oil
006. Mastic asphalt is melted at the site of work and applied hot at a temperature of about  
(A) 250°C (B) 290°C  
(C) 310°C (D) 350°C
- 1 007. Which material will you recommend for a staircase in industrial workshop?  
(A) R.C.C. (B) Timber  
(C) Aluminium ✓ (D) Steel

008. The roof suitable for large assembly hall will be  
 (A) Couple trussed roof (B) R.C.C. flat roof  
 (C) Shell roof (D) Anti clastic roof
009. For a rectangular foundation of width  $b$ , eccentricity of load should not exceed  
 (A)  $b/2$  (B)  $b/3$   
 (C)  $b/4$  (D)  $b/6$
010. A projecting stone from wall which is usually provided to serve as support for joist, truss, weathe shed is  
 (A) cornice (B) coping  
 (C) frieze (D) corbel
011. A plaster, preferable to use a final coat for surfaces of X-Ray room is  
 (A) Acoustic plaster (B) Barium plaster  
 (C) Granite silicon plaster (D) Gypsum plaster
012. Clover leaf type cofferdam belongs to the type of  
 (A) braced type (B) sheet pile type  
 (C) diaphragm type (D) cellular cofferdam
013. Box type of structure of caisson has the shape of  
 (A) triangle (B) hexagon  
 (C) rectangle (D) slit
014. The wedge shaped units forming the arch are called  
 (A) springers (B) voussoirs  
 (C) haunches (D) key-stones
015. A series of steps without any platform, break or landing in their direction is called  
 (A) flier (B) flight  
 (C) stringer (D) pitch

- ① 016. Residential buildings are treated as
- (A) light construction
  - (B) heavy construction
  - (C) industrial construction
  - (D) private construction
- 017. Site order book is used for recording
- (A) instructions by executive engineers
  - (B) construction measurements
  - (C) issue of store equipments
  - (D) names of casual labour
- ① 018. The time by which activity completion time can be delayed without affecting the start of succeeding activities, is known as
- (A) duration
  - (B) total float
  - (C) free float
  - (D) interfering float
- 019. Critical path lies along the activities having total float
- (A) zero
  - (B) positive
  - (C) negative
  - (D) same
- 020. If  $\Delta$  is the angle of deflection of a simple circular curve of radius R, the length of its long cord is
- (A)  $R (\cos \Delta/2)$
  - (B)  $2R (\cos \Delta/2)$
  - (C)  $R (\sin \Delta/2)$
  - (D)  $2R (\sin \Delta/2)$
- 021. In a triangulation survey, a well conditioned triangle has no angle less than
- (A)  $20^\circ$
  - (B)  $30^\circ$
  - (C)  $45^\circ$
  - (D)  $60^\circ$
- ① 022. The angular distance of celestial or heavenly body above the horizon, measured on the vertical circle passing through the body is
- ✓ (A) Latitude
  - (B) Longitude
  - (C) Azimuth
  - ✓ (D) Altitude

- ① 023. The curve of equal heights are known as  
•(A) isohypses (B) isobaths  
(C) isobars (D) isoclin
024. If the last ordinate zero, will it be discarded in the Simpson's formula?  
(A) no (B) yes  
(C) both are possible (D) non predictable
025. The declination and right ascension of the sun becomes  $23^{\circ}27'$  S and  $270^{\circ}$  respectively on  
(A) March 21 (B) June 21  
(C) September 21 (D) December 22
- ☐ 026. The maximum net pressure intensity causing shear failure of soil, is known as  
(A) safe bearing capacity •(B) net safe bearing capacity  
(C) net ultimate bearing capacity (D) ultimate bearing capacity
- ☐ \* 027. The ratio of the volume of water present in a given soil mass to the total volume of its voids, is known as  
(A) porosity (B) void ratio  
(C) percentage voids •(D) degree of saturation
- ☐ 1 028. The value of angle of internal friction in cohesive soil is  
(A)  $10^{\circ}$  •(B) negligible  
(C)  $30^{\circ}$  (D)  $6.5^{\circ}$
029. Coulomb assumed in his wedge theory that  
(A) wall surface is vertical  
(B) wall surface is smooth  
(C) sliding wedge behaves as rigid body  
(D) soil is non-isotropic

030. The fundamental equation of specific gravity ( $G$ ), dry density ( $\gamma_d$ ), unit weight of water ( $\gamma_w$ ) and void ratio ( $e$ ), is

- (A)  $e = G\gamma_w / (1 + \gamma_d)$  (B)  $G = \gamma_d\gamma_w / (1 + e)$   
(C)  $\gamma_d = G\gamma_w / (1 + e)$  (D)  $\gamma_w = G\gamma_d / (1 + e)$

031. The value of time factor 100% consolidation in double drainage is taken as

- (A)  $\infty$  (B) 0.85  
(C) 0.94 (D) 1.00

032. If  $C$  is cohesion,  $F$  is factor of safety,  $\gamma$  is unit weight of soil and  $H$  is maximum height of embankment, the stability number is

- (A)  $F / (C\gamma H)$  (B)  $C / (F\gamma H)$   
(C)  $H / (CF\gamma)$  (D)  $\gamma / (CFH)$

033. If  $W$  is the weight of soil having moisture content  $W$  and  $V$  is volume of proctor's mould, the dry density of soil is

- (A)  $WV / (1+W)$  (B)  $V / [W(1+W)]$   
(C)  $W / [V(1+W)]$  (D)  $V(1+W) / W$

034. As per IRC, in heavy rainfall regions, the minimum camber provided on bituminous surface roads shall be of

- (A) 2% (B) 3%  
(C) 4% (D) 2.5%

035. The subgrade with cost slope of 1 in 36 was proposed by

- (A) Telford (B) Macadam  
(C) IRC (D) M. Visvesvaraiyya

036. The best transport system for long distance is

- (A) river water transport (B) air transport  
(C) trans country road transport (D) railways

- ① 037. The minimum Intermediate sight distance (ISD) shall be provided in terms of stopping sight distance (SSD) is
- (A) SSD (B) 3 SSD  
 • (C) 2 SSD (D) 4 SSD
- ☐ 038. On urban road stretches with frequent intersections, maximum super elevation is restricted to
- (A) 4% (B) 5%  
 (C) 6% • (D) 7%
- ① 039. On a right angled road intersection with two-way traffic the total number of conflict points are
- (A) 12 • (B) 24  
 (C) 16 (D) 8
- ① 040. As per IRC recommendations, maximum permissible limiting gradient on highway for plain and rolling ground is
- (A) 1:30 (B) 1:15  
 (C) 1:16.7 • (D) 1:20
- ① 041. In a penetration test of bitumen, standard needle shall be released for
- (A) 5 secs (B) 10 secs  
 (C) 15 secs (D) 20 secs
- ① 042. In the CBR testing machine, standard diameter of plunger is
- (A) 4 cm (B) 6 cm  
 (C) 3 cm • (D) 5 cm
- ① 043. 'STOP' sign on highway is a type of
- (A) Cautionary sign (B) Informatory sign  
 • (C) Mandatory sign (D) Warning sign

044. Indian Railways recommends maximum cant deficiency for speed upto 100 kmph on M.G. track is

- (A) 5.1 cm (B) 7.6 cm  
(C) 3.8 cm (D) 10.0 cm

① 045. In Indian railways, the gauge width of Broad Gauge railway track is

- (A) 1.676 m (B) 1.435 m  
(C) 1.762 m (D) 1.610 m

① 046. If 19 sleepers are used under a rail length of B.G. track, then the expression for a sleeper density is

- (A)  $n + 3$  • (B)  $n + 6$   
(C)  $n + 8$  (D)  $n + 4$

047. On Indian railways, for all gauges, the maximum gradient permitted in station yards is

- (A) 1:100 (B) 1:150  
(C) 1:250 (D) 1:400

☐ 048. When the ends of adjoining rails move slightly out of position, the formation is known as

- (A) Creep (B) Kinks  
(C) Buckling (D) Hogging

049. The length of runway is increased per 300 m rise above M.S.L. at the rate of

- (A) 4% (B) 5%  
(C) 6% (D) 7%

050. For night landing, the thresholds are lighted

- (A) red (B) white  
(C) green (D) yellow

051. The paved area for parking of aircrafts and loading and unloading of passenger, cargo is known as
- (A) Apron (B) Hanger  
(C) Thresold (D) Fillet
052. The yawing movement of an aircraft is carried out by
- (A) Aileron (B) Rudder  
(C) Elevator (D) Flaps
053. The sum of pressure head (p/w) and datum head is known as
- (A) total head (B) Bernoulli's head  
(C) Piezometric head (D) Prandtl's head
054. Hydraulic jump is expected when slope of a channel changes from
- (A) mild to milder (B) mild to steep  
(C) critical to steep (D) steep to steeper
055. Water available at the tail race of Pelton turbine will be termed as
- (A) surface water (B) auxiliary water  
(C) ground water (D) waste water
056. SI unit of dynamic viscosity of fluid is
- (A)  $m^2/s$  (B)  $Nm/s$   
(C)  $N/m$  (D)  $Ns/m^2$
057. Reynold's number for pipe flow having mass density  $\rho$ , velocity  $V$ , dynamic viscosity  $\mu$  and pipe diameter  $d$  is
- (A)  $\mu vd/\rho$  (B)  $\rho vd^2/\mu$   
(C)  $\rho vd/\mu$  (D)  $\rho v^2 d/\mu$
058. The average velocity of viscous fluid flow through a pipe of radius  $R$  occurs at a radial distance of
- (A)  $0.5 R$  (B)  $0.707 R$   
(C)  $0.25 R$  (D)  $0.803 R$

059. For the most economical rectangular open channel section of width  $B$ , the depth of flow should be
- (A)  $B/4$  (B)  $B/2$   
 (C)  $3B/2$  (D)  $B/3$
060. Pelton wheel is
- (A) Tangential flow turbine (B) Radial flow turbine  
 (C) Axial flow turbine (D) Mixed flow turbine
061. The demand of early Rabi crop is usually met by
- (A) gravity canals (B) tube wells  
 (C) pumped canals (D) spray
- ① 062. For standing crops in undulating sandy fields, the best method of irrigation is
- (A) sprinkler irrigation (B) free flooding  
 (C) check method (D) furrow method
063. F.S.L. of a canal at its head with respect to parent canal is kept
- (A) at the same level (B) 15 cm lower  
 (C) 15 cm higher (D) 1 m lower
064. A deficit of sediments in flowing water may cause a river
- (A) meandering type (B) aggrading type  
 (C) degrading type (D) sub-critical type
065. The non dimensional number influencing channel flow as critical or sub critical is
- (A) Euler number (B) Weber number  
 (C) Nusselt number (D) Froude number
066. Hydrograph is a graphical representation of
- (A) surface run off (B) ground water flow  
 (C) rainfall (D) discharge flowing in the river

067. Isohytes are the imaginary lines joining the points of equal

- (A) pressure (B) height  
(C) humidity (D) rainfall

068. Sharp crested weirs are generally used for

- (A) large flows  
(B) small flows  
(C) streams carrying high sediment loads  
(D) river carrying floating debris

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① 069. The representative fraction of the scale 1 cm = 100 km is

- (A)  $\frac{1}{10,000}$  (B)  $\frac{1}{100}$   
(C)  $\frac{1}{1,00,000}$  (D)  $\frac{1}{10,000,000}$

① 070. If  $\Delta$  is the depth of water in meters, B is the number of days of the base period and D is the duty in hectare/cumec, the relationship which holds good is,

- (A)  $D = (8.64\Delta)/B$  (B)  $B = (8.64D)/\Delta$   
(C)  $D = \Delta/(8.64B)$  (D)  $\Delta = (8.64B)/D$

$\Delta = \frac{8.64B}{D}$

071. In a barrage, the crest level is kept

- (A) low with large gates (B) high with large gates  
(C) high with no gates (D) low with no gates

① 072. The average domestic consumption under normal conditions in an Indian city per day per person in liters, is

- (A) 105 (B) 115  
(C) 125 (D) 135

① 073. The drop man holes are generally provided in sewers for

- (A) industrial areas (B) large townships  
(C) hilly townships (D) cities in plain

074. From the surface of reservoir, evaporation may be minimized by sprinkling  
(A) spirit (B) hydro chloric acid  
(C) acetyl alcohol (D) methane

- ① 075. An aquiclude is  
(A) a non artesian aquifer  
(B) an artesian aquifer  
✓(C) a confined bed of impervious material between aquifers  
(D) a large water body underground

076. The sewer which transports the sewage to the point of treatment, is called  
(A) house sewer (B) out-fall sewer  
(C) branch sewer (D) lateral

- ☐ 077. The most commonly used pump for lifting water in water supply main, is  
(A) axial flow pump (B) reciprocating pump  
(C) rotary type pump (D) centrifugal pump

- ☐ 078. The chloride content of treated water for public supplies should not exceed  
(A) 100 ppm (B) 150 ppm  
(C) 200 ppm (D) 250 ppm

- ① 079. Which of the following is not coagulant?  
(A) alum (B) ferric chloride  
✓(C) gelatin (D) sulphar dioxide

- ☐ 080. The time needed by water to reach outlet from even remotest drainage area is called  
(A) time of concentration (B) time of critical rainfall  
✓(C) critical time of concentration (D) delay period

① 081. 5 days biochemical oxygen demand ( $BOD_5$ ) is taken at a temperature of  
(A)  $0^\circ C$  (B)  $15^\circ C$   
✓(C)  $20^\circ C$  (D)  $25^\circ C$

☐ 082. The sewer which resists sulphide corrosion, is  
(A) Brick sewer ✓(B) Cast iron sewer  
(C) R.C.C. sewer (D) Lead sewer

☐ 083. A low wall built out into the sea more or less perpendicular to the coast line, to resist the travel of sand and shingle along a beach is  
✓(A) break water (B) break wall  
(C) groins (D) share wall

084. Which of the following is a vector quantity  
(A) mass (B) power  
(C) velocity (D) energy

085. Moment of Inertia of uniform circular disc about any of its diameter is (diameter =  $2r$ , mass =  $M$ )

(A)  $Mr^2$  (B)  $\frac{Mr^2}{2}$   
(C)  $\frac{Mr^2}{12}$  (D)  $\frac{Mr^2}{4}$

086. The two forces  $P$  and  $Q$  ( $P > Q$ ) act on the same straight line but in opposite direction, their resultant is  
(A)  $P + Q$  (B)  $P/Q$   
(C)  $Q/P$  (D)  $P - Q$

087. When equal and opposite forces applied to a body tend to elongate it, the stress so produced is called  
(A) shear stress (B) compressive stress  
(C) tensile stress (D) transverse stress

088. The equivalent length of a column fixed at one end and free at the other end is  
 (A)  $0.5 l$  (B)  $0.7 l$   
 (C)  $l$   (D)  $2 l$
089. The centre of gravity of the solid hemisphere of radius  $r$  is located from the flat base of hemisphere along the centerline at a distance of  
 (A)  $r/2$  (B)  $3r/8$   
 (C)  $4r/3\pi$  (D)  $4r/5$
090. The relationship between bulk modulus  $K$ , modulus of elasticity  $E$  and modulus of rigidity  $G$  is  
 (A)  $E = (6KG)/(2K + G)$  (B)  $E = (9KG)/(2K - G)$   
 (C)  $E = (6KG)/(3K - G)$   (D)  $E = (9KG)/(3K + G)$
091. Following material is having Poisson's ratio practically zero.  
 (A) Concrete  (B) Cork  
 (C) Glass (D) Rubber
092. Maximum bending moment on a simply supported beam of total length  $L$  with uniformly distributed load  $w$  per unit length covering over entire length is  
 (A)  $WL/2$  (B)  $WL^2/2$   
 (C)  $WL^2/8$   (D)  $WL^2/4$
093. The maximum magnitude of shear stress due to shear force  $S$  on a rectangular section of area  $A$  at the neutral axis, is  
 (A)  $3S/2A$  (B)  $S/2A$   
 (C)  $2S/3A$  (D)  $2S/A$
094. The two principle planes are located at an angle of  
 (A)  $180^\circ$  (B)  $45^\circ$   
 (C)  $90^\circ$  (D)  $135^\circ$

- ① 095. Bending moment in a suspension cable is  
✓(A) Zero (B)  $Wl^2/2$   
(C)  $Wl$  (D)  $Wl^2/8$
096. If the length of an intermediate span of a continuous slab is 5.0 m, the length of end span is kept  
(A) 4.5 m (B) 4.0 m  
(C) 3.5 m (D) 3.0 m
- ① 097. A concrete using an air entrained cement  
(A) has strength less than 10% to 15%  
(B) has more resistance to weathering  
✓(C) is more plastic and workable  
(D) is free from segregation and bleeding
- ① 098. The minimum percentage of chemical ingredient in cement is that of  
(A) alumina (B) iron oxide  
✓(C) magnesium oxide (D) lime
- ① 099. The process of proper and accurate measurement of concrete ingredients for uniformity of properties, is known as  
✓(A) grading (B) curing  
(C) mixing (D) batching
- ① 100. All the columns are designed for a minimum eccentricity of  
(A) 10 mm (B) 15 mm  
(C) 05 mm ✓(D) 20 mm