



Teachingninja.in

- ★ Latest Govt Job updates
- ★ Private Job updates
- ★ Free Mock tests available

Visit - teachingninja.in

**AMC Assistant Technical
Supervisor (Engineer)
Official Paper (Held On_
18 Aug, 2024)**



001. The survey conducted to determine the boundaries of fields, estates, houses etc is known as
(A) Topographical survey (B) Cadastral survey
(C) City survey (D) Engineering survey
002. While surveying, in which of the following object, chaining is obstructed but vision is free?
(A) Hill (B) Road
(C) Pond (D) Building
003. Read the following sentences in relation to compass survey
1. Prismatic compass gives whole circle bearing of a line
 2. Surveyor compass gives quadrantal bearing of a line
 3. In surveyor's compass, 0° is marked on east and west and 90° is marked at north and south
- Which option is correct?
- (A) 1 and 2 are true (B) 1 and 3 are true
(C) 2 and 3 are true (D) 1, 2 and 3 are true
004. What will be the back bearing of a line AB if its fore bearing is $S 40^\circ W$
(A) $S 40^\circ W$ (B) $N 40^\circ W$
(C) $N 40^\circ E$ (D) $S 40^\circ E$
005. The operation of levelling across any river is termed as
(A) Profile levelling (B) Reciprocal levelling
(C) Compound levelling (D) Fly levelling
006. Read the following sentences in the context of contour
1. When higher values of elevations are inside the loop, it indicates hill
 2. The horizontal distance between two consecutive contours is termed as horizontal interval
 3. When lower values of elevations are inside the loop, it indicates pond
- Which option is correct?
- (A) 1 and 2 are true (B) 2 and 3 are true
(C) 1 and 3 are true (D) 1, 2 and 3 are true
007. Which is NOT a rule to compute boundary area?
(A) Trapezoidal rule (B) Mid-ordinate rule
(C) Average ordinate rule (D) Rectangle rule

008. A tacheometer is fixed at a point A. The lower, middle and upper hair readings on a staff located at point B were 0.5 m, 0.75 m, and 1.0 m respectively. What is the distance AB?

- (A) 25 m (B) 50 m
(C) 100 m (D) 125 m

009. If V is speed in metres per second and R is the radius of curve and C is rate of change of radial acceleration in metre per second cube the length of transition curve can be given by

- (A) V^3/CR (B) V^2/CR
(C) V/CR (D) CR/V^3

010. Which is not a method of plane table surveying?

- (A) Traversing (B) Radiation
(C) Intersection (D) Bisection

011. The location of point of maximum bending moment in case of a simply supported beam loaded with uniformly distributed load throughout the span will be

- (A) At left hand support (B) At right hand support
(C) At centre (D) Anywhere in the span

012. A simply supported beam is subjected to a couple at the centre the shape of shear force diagram will be

- (A) Rectangle (B) Triangle
(C) Trapezium (D) Parabolic

013. P = Normal load, A = cross-sectional area, M = moment and I = moment of inertia and y = perpendicular distance to neutral axis the expression to calculate combined direct and bending stress is

- (A) $P/A+(I/M)y$ (B) $P/A+(M/I)y$
(C) $A/P+(I/M)y$ (D) $A/P+(M/I)y$

014. The horizontal distance between two parallel main reinforcing bar shall not be less than

- (A) 2 mm more than the nominal maximum size of coarse aggregate
(B) 3 mm more than the nominal maximum size of coarse aggregate
(C) 4 mm more than the nominal maximum size of coarse aggregate
(D) 5 mm more than the nominal maximum size of coarse aggregate

015. Which one of the following will be considered as live load in design of a structure?
(A) Wall load (B) Snow load
(C) Furniture load (D) Wind load
016. Which one will be designated as standard concrete?
(A) M15 (B) M20
(C) M25 (D) M60
017. The ratio of maximum shear stress to average shear stress in case of a rectangular beam section will be
(A) 1.33 (B) 1.5
(C) 1.67 (D) 2.0
018. The basic wind velocity required for design of steel structure is referenced from
(A) IS: 875 (Part-1) (B) IS: 875 (Part-2)
(C) IS: 875 (Part-3) (D) IS: 875 (Part-4)
019. Which one of the following is considered as a limitation of steel structures
(A) Low Dead weight (B) Corrosion
(C) Low recurring expenses (D) Good rigidity
020. Radius of Mohr's circle of stress represents
(A) Normal Stress (B) Shear stress
(C) Principal Stress (D) Maximum Normal Stress
021. Which statement is **incorrect** in relation of index properties of soil?
(A) The value of water content can not be greater than 100%
(B) The fine-grained soil has greater void ratio than coarse grained soil
(C) The porosity can not be greater than 1
(D) The void ratio can be greater than one
022. Which test is **not** conducted to determine water content of soil?
(A) Sand bath method (B) Calcium Carbide method
(C) Oven drying method (D) Water displacement method
023. Specific gravity of soil can be determined by
(A) Core cutter method (B) Water displacement method
(C) Pycnometer method (D) Sand replacement method

024. Which statement is **correct** in relation to permeability of soil?
- (A) Greater the void ratio, lesser is the value of coefficient of permeability
 (B) Coefficient of permeability increases with the decrease in temperature
 (C) Permeability is inversely proportional to the specific surface of particle
 (D) The permeability of coarse grained soil is small compared to fine-grained soils
025. Which of the following is known as slow test?
- (A) Consolidated-drained test
 (B) Consolidated-undrained test
 (C) Unconsolidated-undrained test
 (D) Unconsolidated test
026. The stone suitable for bridge pier, abutments etc is
- (A) Sand stone (B) Lime stone
 (C) Granite (D) Trap
027. Quick setting cement is prepared by
1. Reducing the percentage of gypsum
 2. Increasing the percentage of gypsum
 3. Fine grinding
- Which option is correct?
- (A) 1,2,3 are True (B) 1,2 are True
 (C) 2,3 are True (D) 1,3 are True
028. Compaction factor test is performed on concrete to determine
- (A) Workability (B) Degree of Compaction
 (C) Compressive strength (D) Setting time
029. Which is not a property of hardened concrete?
- (A) Strength (B) Durability
 (C) Workability (D) Dimensional stability
030. Which of the following test is not performed on bitumen ?
- (A) Viscosity test (B) Crushing value test
 (C) Ductility test (D) Softening point test
031. The shape of aggregate that gives maximum strength is
- (A) Flaky aggregate (B) Elongated aggregate
 (C) Rounded aggregate (D) Cubical aggregate

032. Read the following factors in context of the design of concrete mix
1. Type and grade of cement
 2. Maximum nominal size of aggregates
 3. Water-cement ratio
 4. Durability

The design of concrete mix is based on which of the above factors?

- (A) 1, 2 and 3 are required (B) 2, 3 and 4 are required
(C) 1, 3 and 4 are required (D) 1, 2, 3 and 4 are required

033. Which is NOT followed/required to obtain the high-performance concrete?
- (A) Improved aggregate-matrix bond
(B) Reduced porosity
(C) Increase in water-cement ratio
(D) Improved compaction

034. The nominal mix generally used for water retaining structure is

- (A) 1:1:2 (B) 1:1.5:3
(C) 1:1.5:4 (D) 1:2:4

035. The grade of concrete corresponding to nominal mix proportion 1:3:6 is

- (A) M25 (1:1:2) (B) M20 (1:1.5:2)
(C) M15 (1:2:4) (D) M10 (1:3:6)

036. Which one of the following is a deep foundation?

- (A) Strip footing (B) Grillage foundation
(C) Raft foundation (D) Pile foundation

037. The portion of brick obtained by cutting a brick lengthwise into two pieces is known as

- (A) King Closer (B) Queen closer
(C) Bevelled closer (D) Mitred closer

038. Read the following statements

1. Every course consists of headers and stretchers placed alternatively in double Flemish bond
2. Alternate courses will show either header or stretcher in elevation in single Flemish bond
3. The facing and backing of wall will have different appearance in double Flemish bond

Which option is true?

- (A) Statements 1 and 2 are true (B) Statements 1 and 3 are true
(C) Statements 2 and 3 are true (D) Statements 1, 2 and 3 are true

047. An intermediate floor between two floors overhanging or overlooking a floor beneath with a minimum clear height of 2.1 metre at the below floor is known as
- (A) Basement floor (B) Mezzanine floor
(C) First floor (D) Ground floor
048. As per principle of building planning, bed room in a residential building should have an aspect of
- (A) West or North-west (B) South or south-west
(C) North (D) North-east
049. In case of stair, a vertical member supporting the hand rail is known as
- (A) Baluster (B) String
(C) Waist (D) Riser
050. The area covered by a building on all floors including the cantilever portion, wall and column etc is known as
- (A) Floor area (B) Carpet area
(C) Built-up area (D) Plot area
051. Patch repair can be done when structural element have
- (A) Minor structural cracks (B) Major structural cracks
(C) Hair line cracks (D) Larger size crack
052. Read the following sentences for suitability of use of rapid hardening cement
1. Road repair work
 2. Prefabricated concrete construction
 3. Form work is required to be removed early
- Which option is correct ?
- (A) 1 and 2 are true (B) 2 and 3 are true
(C) 1 and 3 are true (D) 1, 2 and 3 are true
053. The monument "Adalaj Ni Vav" is a structure of which category ?
- (A) Pond (B) Stepwell
(C) Bore well (D) Reservoir

| Contd...

054. A digital representation of physical and functional characteristics of a buildings and other physical assets is called
(A) Perspective drawing
(B) Isometric drawing
(C) Building information modelling
(D) Technical drawing
055. Which is **NOT** a historical moment of Gujarat?
(A) Rani Ki Vav (B) Sun Temple
(C) Archaeological site Lothal (D) Minakshi Temple
056. Which is not a recent development in construction industry?
(A) Cavity wall construction
(B) Modular Construction
(C) Green building construction
(D) Use of Fibre -reinforced polymers
057. Which city is known as walled city in Gujarat?
(A) Surat (B) Ahmedabad
(C) Vadodara (D) Bhuj
058. Which of the following is used in to determine the shear strength of soil in field?
(A) Box shear test (B) Vane shear test
(C) Tri-axial shear test (D) Unconfined compression test
059. Which of the following is **true** in the case of compaction of soils?
(A) The compactive effort in standard Proctor test is 4.55 times than in modified Proctor test
(B) The compaction of soil is not affected by water content of the soil
(C) 10% air-void line and 90% saturation lines are not identical
(D) A well graded soil attains a much lesser dry unit weight than a poorly graded soil
060. Soil stabilization is done
1. To increase shear strength of soil
2. To reduce compressibility of soil
3. To increase the bearing capacity of foundation soils
Which option is correct?
(A) 1 and 2 are true (B) 1 and 3 are true
(C) 2 and 3 are true (D) 1, 2 and 3 are true

061. Read the following statements in connection of bearing capacity of soil
1. When water table is located at a depth equal or greater than width of foundation, the bearing capacity is not affected
 2. When water table is located at a depth equal or greater than width of foundation, the bearing capacity is reduced
 3. When the water table is located at the level of the base of the footing or below it, the surcharge term is not affected in the Terzaghi's bearing capacity formula

Which option is correct ?

- (A) 1 and 3 are true (B) 1 and 2 are true
(C) 2 and 3 are true (D) 1, 2 and 3 are true

062. If B_p is the size of plate, What would be the size of pit to conduct plate load test at the site?

- (A) $B_p \times B_p$ (B) $2B_p \times 2B_p$
(C) $4B_p \times 4B_p$ (D) $5B_p \times 5B_p$

063. Which of the following is **not** used as coagulant in water treatment process?

- (A) Copper sulphate (B) Alum
(C) Sodium Aluminate (D) Chlorinated copperas

064. Which one is **not** a method of disinfection of water ?

- (A) By use of excessive lime
(B) By use of potassium chromate
(C) By use of ozone
(D) By use of iodine and bromine

065. Read the statement in relation of quality and treatment of water

1. The residual chlorine in water is determined by Starch-Iodide test
2. Hardness in water is determined by Versenate method
3. The permissible limit of chlorides in water is 300 ppm

Which option is correct?

- (A) 1 and 2 are true (B) 1 and 3 are true
(C) 2 and 3 are true (D) 1, 2 and 3 are true

066. The layout of distribution system which can be adopted only in well planned locality of cities is

- (A) Grid-iron system (B) Dead end system
(C) Ring system (D) Radial system

067. Which of the following works on the principal of anaerobic digestion?
(A) Trickling filter (B) Oxidation pond
(C) Activated sludge process (D) Septic tank
068. The test which measures the amount of carbon in organic matter of sewage is
(A) Bio-chemical oxygen demand test
(B) Chemical oxygen demand test
(C) Total solid test
(D) Nitrogen test
069. The permissible limit of 5 days BOD for industrial waste, which can be discharged into public sewer is
(A) 250 mg/l (B) 500 mg/l
(C) 750 mg/l (D) 1000 mg/l
070. Dissolved oxygen in sewage is determined after titration against
(A) Silver nitrate (B) Sodium thiosulphate
(C) Potassium dichromate (D) Copper sulphate
071. Which gas is not available in air pollutants generated through man made sources?
(A) Sulphur dioxide (B) Nitrogen oxides
(C) Carbon monoxide (D) Ammonia
072. In the healthful residential environment the noise level should be kept in the range of
(A) 40-50 decibels (B) 50-60 decibels
(C) 60-70 decibels (D) 70-80 decibels
073. Slope provided to the road surface in transverse direction to drain off rain water is called as
(A) Camber (B) Gradient
(C) Superelevation (D) Skid resistance
074. Which factor does not affect stopping sight distance?
(A) Reaction time of driver
(B) Speed of vehicle
(C) Frictional resistance between road and tyre
(D) Characteristics of vehicle

075. Which is **not** a method of origin and destination study?
(A) License plate method
(B) Road side interview method
(C) Passenger car method
(D) Return post card method
076. The average speed maintained by vehicle over a particular stretch of road while vehicle is in motion is called
(A) Spot speed (B) Average speed
(C) Running speed (D) Travel speed
077. Which has maximum value of passenger car unit (PCU) recommended by IRC for urban roads
(A) Auto rickshaw (B) Bus
(C) Motor cycle (D) Light commercial vehicle
078. Which is a regulatory sign?
(A) Speed limit sign (B) Cross-road
(C) Pedestrian crossing (D) Narrow bridge
079. Which test is not conducted on bitumen?
(A) Viscosity test (B) Abrasion test
(C) Softening point test (D) Penetration test
080. Which factor does not affect the design and performance of cement concrete pavement?
(A) Wheel load
(B) Temperature variations at the location of the road
(C) Types of joints and their spacing
(D) Optimum moisture content
081. As per Indian Road Congress (IRC) the maximum value of superelevation in plain and rolling terrain is
(A) 4% (B) 5%
(C) 7% (D) 10%

082. Which is not a function of transition curves in horizontal alignment of highway?
- (A) To introduce gradually the centrifugal force
 - (B) To provide sufficient sight distance
 - (C) To enable gradual introduction of designed superelevation
 - (D) To enable gradual introduction of extra widening of pavement at the start of circular curve
083. Which statement is **not true** in case of dowel bars and tie bars in cement concrete roads ?
- (A) The diameter of the dowel bar and spacing between them are designed such that a group of dowel bars can transfer 40% of the design axle load.
 - (B) Tie bars are used across the longitudinal joints of cement concrete pavements.
 - (C) The tie bars are designed to act as load transfer devices.
 - (D) The bearing stress in the concrete also depends upon the diameter of dowel bar.
084. While designing road bridges and culverts, which of the following load is not considered?
- (A) Dead Load
 - (B) Live load
 - (C) Machine load
 - (D) Snow load
085. The span in which the total cost of the substructure is equal to the total cost of superstructure is termed as
- (A) Balanced span
 - (B) Economical span
 - (C) Cantilever span
 - (D) Central span
086. The length available between extreme edges of water surface at the highest flood level, measured at right angles to the abutment faces of a bridge is called as
- (A) Afflux
 - (B) Effective span
 - (C) Linear waterway
 - (D) Length of bridge

087. Which is not a objective of road side arboriculture?
 (A) To provide shade and pleasant drive to road users
 (B) To provide fruit bearing trees and timber
 (C) To intercept annoying sound waves and fumes from road surface
 (D) To increase strength of road through roots of trees
088. The unit of measurement of damp proof course is
 (A) Running meter (B) Square meter
 (C) Cubic metre (D) Quintal
089. Read the following sentences in term of deduction of opening in estimation of quantity of plastering
1. No deductions shall be made for ends of beam, posts rafter etc
 2. For opening up to 0.5 sqm, no deduction is made
 3. For opening above 3 sqm, deduction is made for one face of the opening only
- Which option is correct ?
 (A) 1 and 2 are true (B) 1 and 3 are true
 (C) 2 and 3 are true (D) 1, 2 and 3 are true
090. Which is not required to prepare estimate of a construction work?
 (A) Drawings (Plan and section) (B) Specifications
 (C) Rates (D) Construction material
091. The number of bricks required in one cubic metre of masonry work?
 (A) 100 (B) 1000
 (C) 500 (D) 5000
092. How many bags of cement are required to prepare M15 cement concrete mix
 (A) 0.217 bags (B) 6.2 bags
 (C) 0.1428 bags (D) 4.08 bags
093. Read the following sentences in the context of specification
1. Specification describes nature and class of work, materials to be used in the work
 2. The cost of work depends on specification
 3. General specifications and detailed specifications are types of specification

Which option is correct?

- (A) 1 and 2 are true (B) 1 and 3 are true
 (C) 2 and 3 are true (D) 1, 2 and 3 are true

1:2:4
 $\rightarrow \frac{1 \text{ m}^3}{7} \times 1.54$

094. Read the following sentences
- 1) Critical Path Method (CPM) is a deterministic approach
 - 2) Program evaluation and review technique (PERT) is the non-deterministic approach
 - 3) Time is the most essential and basic variables in PERT system of planning and control

Which one is correct ?

- (A) 1 and 2 are true (B) 1 and 3 are true
(C) 2 and 3 are true (D) 1, 2 and 3 are true

095. Cost slope is defined as

- (A) $(\text{Crash cost} - \text{normal cost}) / (\text{Normal time} - \text{crash time})$
(B) $(\text{Normal cost} - \text{crash cost}) / (\text{Normal time} - \text{crash time})$
(C) $(\text{Crash cost} - \text{normal cost}) / (\text{Crash time} - \text{normal time})$
(D) $(\text{Normal cost} - \text{crash cost}) / (\text{Crash time} - \text{normal time})$

096. Which is not a type of engineering contract?

- (A) Item rate contract (B) Lump-sum contract
(C) Plinth area contract (D) Labour contract

- 1.2 m²
097. The amount of cement required in 12 mm thick plastering in 1: 4 cement mortar is (per 100 m² area)

- (A) 4 m³ (B) 0.4 m³
(C) 2 m³ (D) 1.6 m³

098. Which is a type of process in the development of crack due to sulphate attack?

- (A) Mechanical process (B) Physico-chemical process
(C) Alkaline process (D) Acidic process

099. Which type of cracks indicates the development of tension in concrete?

- (A) Medium crack (B) D-cracking
(C) Isolation crack (D) Craze

100. Which of these is an external source of dampness?

- (A) Precipitation (B) Condensation
(C) Construction moisture (D) Leak in the services