

101/21

Question Booklet Alpha Code

A

Question Booklet Sl. No.

Total Number of Questions : 100

Time : 75 Minutes

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

1. The Question Paper will be given in the form of a Question Booklet. There will be four versions of Question Booklets with Question Booklet Alpha Code viz. **A, B, C & D**.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the Question Booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a Question Booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator **IMMEDIATELY**.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same alpha code.
6. The Question Booklet will be sealed at the middle of the right margin. Candidate should not open the Question Booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him/her contains all the 100 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the Question Booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

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1. Geologically marble is known as
 - A) sedimentary rock
 - B) metamorphic rock
 - C) igneous rock
 - D) foliated rock
2. The function of gypsum in cement is to
 - A) retard initial setting time
 - B) accelerate initial setting time
 - C) impart strength
 - D) increase workability
3. The frog of brick is normally laid on its
 - A) top face
 - B) bottom face
 - C) side
 - D) longer face
4. Linseed oil is used in paint as
 - A) base
 - B) vehicle
 - C) drier
 - D) thinner
5. Brass is an alloy of
 - A) copper and zinc
 - B) zinc and lead
 - C) tin and silver
 - D) zinc and nickel
6. The brick laid with its breadth parallel to the face of the wall is known as
 - A) stretcher
 - B) header
 - C) king closer
 - D) queen closer
7. Flemish bond is a type of bond in which the masonry contains
 - A) headers and stretchers are laid alternately in the same course
 - B) headers and stretchers are laid in alternate courses
 - C) stretchers are laid in every course
 - D) headers are laid in every course
8. The under surface of an arch is called
 - A) intrados
 - B) haunch
 - C) key
 - D) soffit
9. The highest line of sloping roof where two opposite slopes meet is known as
 - A) ridge
 - B) rafter
 - C) eave
 - D) purlin

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10. The main principle of surveying is to work
- A) from whole to part
 - B) from part to whole
 - C) from higher level to lower level
 - D) from lower level to higher level
11. A well conditioned triangle does not have any angle less than
- A) 30 degree
 - B) 20 degree
 - C) 60 degree
 - D) 90 degree
12. An imaginary line joining points of equal elevation on the surface of the earth represents
- A) level line
 - B) horizontal line
 - C) contour surface
 - D) contour line
13. The zero of the graduated circle of a prismatic compass is located at
- A) north end
 - B) south end
 - C) east end
 - D) west end
14. A clinometers is used for
- A) setting out right angles
 - B) measuring volume
 - C) measuring angle of slope
 - D) contour gradient
15. The method of surveying in which field work and plotting work are done simultaneously is called
- A) plane table survey
 - B) compass survey
 - C) chain survey
 - D) leveling
16. Pantagraph is used for
- A) measuring distances
 - B) measuring areas
 - C) setting out right angles
 - D) enlarging or reducing plans
17. The centre of gravity of a plane lamina will not be at its geometrical centre if it is a
- A) right angled triangle
 - B) equilateral triangle
 - C) circle
 - D) square

18. The moment of inertia of a triangular section with base b , height h about centroidal axis parallel to base is
 A) $bh^3/12$ B) $bh^3/36$
 C) $b^3h/36$ D) $bh^3/3$
19. Every material obeys the Hooke's law within its
 A) shrinkage limit B) elastic limit
 C) plastic limit D) none of these
20. Strain energy is the energy
 A) energy stored in a body when strained within elastic limit
 B) maximum strain energy stored in a body
 C) energy stored in a body when strained up to breaking of a specimen
 D) proof resilience per unit volume of a material
21. The bending equation is
 A) $M/I = F/y = E/R$ B) $M/I = y/F = E/R$
 C) $I/M = F/y = E/R$ D) $M/I = F/y = R/E$
22. When a cantilever beam is loaded at its free end, the maximum compressive stress develop at
 A) bottom fibre B) top fibre
 C) neutral axis D) centre of gravity
23. The shear force at the free end of a cantilever beam of length l carrying a uniformly distributed load of w /unit length is
 A) $wl/4$ B) $wl/2$
 C) zero D) wl
24. Point of contraflexure occurs in
 A) cantilever beam B) simply supported beam
 C) overhanging beam D) fixed beam
25. The maximum shear stress developed in a beam of rectangular section is
 A) equal to average shear stress
 B) $4/3$ times average shear stress
 C) 2 times average shear stress
 D) 1.5 times average shear stress

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26. Differential manometers are used to measure
- A) pressure in water channels, pipes etc.
 - B) difference in pressure at two points
 - C) atmospheric pressure
 - D) very low pressure
27. If H is the depth of water retained by a vertical wall, the height of centre of pressure above the bottom is
- A) $H/2$
 - B) $H/3$
 - C) $H/4$
 - D) $2H/3$
28. An ideal fluid
- A) is frictionless and incompressible
 - B) obeys Newton's law of viscosity
 - C) is very viscous
 - D) similar to gas
29. Critical depth h of a channel is
- A) $h = v^2/2g$
 - B) $h = v^2/g$
 - C) $h = v/2g$
 - D) none of the above
30. A piezometer tube is used only for measuring
- A) high pressure
 - B) moderate pressure
 - C) vacuum pressure
 - D) low pressure
31. Symon's rain gauge is
- A) tipping bucket gauge
 - B) weighing type gauge
 - C) float recording gauge
 - D) non recording gauge
32. The rainfall cycle period in India is taken as
- A) 15 years
 - B) 20 years
 - C) 30 years
 - D) 35 years
33. The fall of moisture from atmosphere to the earth surface in any form is called
- A) precipitation
 - B) evaporation
 - C) transpiration
 - D) condensation

34. A canal aligned nearly parallel to the contours of a country is known as
A) side slope canal
B) watershed canal
C) contour canal
D) ridge canal
35. A solid construction put across the river to raise its water level and divert into the canal is known as
A) marginal bund
B) weir
C) dam
D) barrage
36. Permanent hardness of water can be removed by
A) adding alum
B) adding lime
C) boiling
D) zeolite process
37. The maximum permissible chloride content in treated water of public water supplies should not exceed
A) 5 ppm
B) 100 ppm
C) 250 ppm
D) 150 ppm
38. In rapid sand filter air binding is caused due to excessive
A) negative pressure
B) pressure
C) water pressure
D) turbidity
39. The gas which may cause explosion in sewers is,
A) carbon dioxide
B) methane
C) ammonia
D) carbon monoxide
40. Removal of oil and grease from sewage is known as
A) screening
B) skimming
C) filtration
D) oxidation
41. Surge tanks are used to
A) for storage of water
B) to increase the velocity in a pipe line
C) as overflow valves
D) to guard against water hammer

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42. The level of underground water is called
A) water level
B) water table
C) negative level
D) invert level
43. Talus is the soil transported by
A) wind
B) water
C) gravitational force
D) glacier
44. Minimum size of the particles of silt soil is
A) 0.002 mm
B) 0.04 mm
C) 0.06 mm
D) 0.08 mm
45. The portion of road surface used for vehicular traffic only is known as
A) permanent way
B) carriage way
C) shoulder
D) expressway
46. The rate of rise or fall of a road surface along its alignment is called
A) gradient
B) super elevation
C) camber
D) banking
47. The width of top portion of flat footed rail is
A) 66.67 mm
B) 69.80 mm
C) 73.25 mm
D) 75.88 mm
48. The track from which train divert is known as
A) turn out
B) main line
C) crossing
D) point
49. Which one of the following is used to fix flat footed rails on wooden sleepers ?
A) fish plate
B) ballast
C) bearing plate
D) fish bolt
50. A camber consisting of two straight slopes joining at the centre is called
A) barrel camber
B) composite camber
C) elliptical camber
D) sloped camber
51. The diameter of longitudinal bars in a column should not be less than
A) 6 mm
B) 16 mm
C) 20 mm
D) 12 mm

A

52. In a doubly reinforced beam, steel reinforcement is provided in
- A) tension zone
 - B) compression zone
 - C) either tension or compression
 - D) none of the above
53. CPM is
- A) activity oriented
 - B) event oriented
 - C) time oriented
 - D) resource oriented
54. A bar chart is drawn by
- A) time versus activity
 - B) activity versus resource
 - C) resource versus time
 - D) progress versus time
55. Bulk density of a soil is defined as the ratio of
- A) Total mass of soil to the total volume of soil
 - B) Weight of water to the weight of solid
 - C) Unit weight of solid to unit weight of water
 - D) Weight of solid to volume of solid
56. If w is the water content and Y is the unit weight of soil mass, then total unit weight of dry soil Y_d is equal to
- A) $w/Y + 1$
 - B) $Y/w + 1$
 - C) $Y/(1 + w)$
 - D) $(1 + w)/Y$
57. The section in which concrete is not fully stressed to its permissible value when stress in steel reaches its maximum value is called
- A) balanced section
 - B) over reinforced section
 - C) under reinforced section
 - D) critical section
58. The longitudinal shearing stress acting on the surface between the steel and concrete are called
- A) tensile stresses
 - B) compressive stresses
 - C) bond stresses
 - D) hoop stress

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59. The spacing of vertical stirrups in a rectangular beam is
- A) minimum near the supports
 - B) maximum near the centre
 - C) minimum near the centre
 - D) maximum near the supports
60. The section of a beam having greater width at the top in comparison to the width below neutral axis is known as
- A) Critical section
 - B) T section
 - C) L section
 - D) None of these
61. The most reliable estimate is
- A) detailed estimate
 - B) preliminary estimate
 - C) plinth area estimate
 - D) cube rate estimate
62. According to ISI method of measurement the order is in the sequence
- A) length, breadth, height
 - B) breadth, length, height
 - C) height, length, breadth
 - D) none of the above
63. The minimum width of septic tank is taken as
- A) 70 cm
 - B) 75 cm
 - C) 80 cm
 - D) 90 cm
64. The height of sink of wash basin above floor level kept
- A) 60 cm
 - B) 70 cm
 - C) 75 to 80 cm
 - D) 90 cm
65. Pick up the sedimentary rock from the following.
- A) slate
 - B) gneiss
 - C) marble
 - D) limestone
66. In living trees the growth is due to
- A) pith
 - B) heart wood
 - C) cambium
 - D) sapwood

67. The percentage of silica in the composition of Portland cement is
A) 64
B) 22
C) 6
D) 5
68. The external corner of wall surface is known as
A) corner
B) stretcher
C) perpend
D) quoin
69. Line ranger is used for
A) prolongation of the chain line
B) setting right angles to the chain line
C) bisecting the chain line
D) fixing intermediate points on the chain line
70. If the degree of a curve is 4.5, the radius of the curve is
A) 372 m
B) 376 m
C) 382 m
D) 390 m
71. The vertical distance between total energy line and hydraulic gradient line represents
A) static head
B) velocity head
C) pressure head
D) datum
72. Which is the rigid pavement from the following ?
A) water bound macadam pavement
B) bituminous pavement
C) gravel pavement
D) cement concrete pavement
73. The artificial barrier constructed in sea for making the enclosed area safe for the anchorage of ships
A) Dock wall
B) Break water
C) Quay
D) Harbour

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74. Lime obtained from stones containing high percentage of aluminium silicate is called
- A) eminently hydraulic lime B) semi hydraulic lime
C) fat lime D) kankar lime
75. The material which possesses elastic properties in all directions at any point is called
- A) Homogeneous material B) Anisotropic material
C) Aeolotropic material D) Isotropic material
76. At the equator the amount of dip in degrees
- A) zero B) 45
C) 90 D) 60
77. The lines passing through the points of equal magnetic declination
- A) isogonic line B) agonic line
C) isoclinic line D) none of these
78. The vertical wells provided along the banks of a river to draw ground water in dry season are called
- A) open wells B) tube wells
C) artesian wells D) infiltration well
79. As per Indian standards water consumption per capita per day for domestic purpose is
- A) 85 litres B) 100 litres
C) 135 litres D) 110 litres
80. In a shunting signal if the red band is horizontal it indicates
- A) stop B) proceed cautiously
C) proceed D) none of these
81. A track assembly used for diverting train from one track to another is known as
- A) turn out B) crossing
C) junction D) point

A

82. A defined area of the airport to accommodate aircrafts for loading and unloading of cargo and passengers, parking, refueling etc. are known as
- A) runway
B) taxiway
C) apron
D) hangar
83. The intermediate supports for the superstructure of a multi span bridge are known as
- A) abutment
B) piers
C) wing wall
D) retaining wall
84. A small bridge having total length of 6 m or less between the faces of the abutment is known as
- A) culvert
B) sluice
C) wing wall
D) coffer dam
85. The granular material spread on the formation of a railway track for the sleeper to rest upon is known as
- A) sleeper
B) rail
C) ballast
D) none of these
86. Road alignment is
- A) position occupied by the centre line of a road
B) position occupied by cross section
C) position occupied by the cross slope
D) none of these
87. The vertical side member of a shutter frame is called
- A) style
B) rail
C) reveal
D) post
88. Couple roof is used for spans
- A) 3.5 m or less
B) 3.5 m to 5 m
C) 5 m to 6.5 m
D) 6.5 m to 8 m

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89. In chain surveying a tie line is provided
- A) to check the accuracy of survey
 - B) to take offsets
 - C) to avoid long offset from chain line
 - D) to increase number of chain lines
90. Two contour lines having the same elevation
- A) cannot cross each other
 - B) can cross each other
 - C) cannot unite together
 - D) can unite together
91. For most economical rectangular section of a channel the depth is kept
- A) one fourth of the width
 - B) three times the hydraulic radius
 - C) half the width
 - D) hydraulic mean depth
92. If H is the depth of water retained by a vertical wall, the height of centre of pressure above the bottom is
- A) $H/3$
 - B) $H/2$
 - C) $H/5$
 - D) H
93. Absolute humidity in air
- A) decreases at higher altitudes
 - B) increases at higher altitudes
 - C) remains constant
 - D) none of these
94. Dicken's formula for high flood estimate is useful only for the catchment in
- A) Southern India
 - B) Northern India
 - C) Eastern India
 - D) Western India

95. The detention period for plain sedimentation water tank is usually
- A) 4 to 8 hours
 - B) 8 to 16 hours
 - C) 16 to 24 hours
 - D) 24 to 36 hours
96. The soil which contain finest grain particles
- A) coarse sand
 - B) fine sand
 - C) silt
 - D) clay
97. Reynold's number is the ratio of inertia force to
- A) viscous force
 - B) gravity force
 - C) surface tension
 - D) friction
98. The theodolite is an instrument for measuring
- A) horizontal angles only
 - B) vertical angles only
 - C) linear measurement
 - D) horizontal and vertical angle
99. The anti-siphonage pipe is not required in
- A) one pipe system
 - B) two pipe system
 - C) single stack system
 - D) none of these
100. The construction of a temporary structure required to support an unsafe structure is called
- A) underpinning
 - B) scaffolding
 - C) shoring
 - D) none of these
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Space for Rough Work