राष्ट्रीय प्रौद्योगिकी संस्थान वरंगल
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NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL
WARANGAL – 506004, Telangana, INDIA

QUESTION BOOKLET – ADVANCED TEST FOR RECRUITMENT TO TECHNICAL CADRE POSTS

Post:	Technical Assistant
Department	Estate
Advt.:	01/2026 dated 09.01.2026
Date of Exam:	12-08-2026
Duration:	2 Hours
Total Marks:	200 (100 Q X 2 M each)
No. of Questions:	100 (MCQs)
Negative Marking:	1/4th mark for every wrong answer

INSTRUCTIONS TO THE CANDIDATES

1. This is an Advanced Test comprising 100 Multiple Choice Questions (MCQs), to be conducted in MCQ mode only.
2. The duration of the test is 2 hours.
3. Answers must be marked on the OMR Answer Sheet using a blue or black ballpoint pen only. Use of pencils is not permitted.
4. Candidates must write/mark their Roll Number, Post applied for, and other required details in the designated space on the OMR Answer Sheet.
5. Answers marked on the Question Booklet or on any sheet other than the OMR Answer Sheet will not be evaluated.
6. For each question, darken the circle corresponding to the correct answer completely and clearly on the OMR Answer Sheet.
7. Each question carries equal marks. There will be a negative marking of ¼ th mark for every wrong answer. No marks will be deducted for questions not attempted.
8. Mark only one answer for each question. Marking more than one circle for a question will be treated as a wrong answer.
9. Overwriting, cutting, or erasing that leaves the OMR Answer Sheet unclear may result in the answer not being evaluated.
10. No candidate shall leave the examination hall during the test.
11. Any attempt to copy, use unfair means, or communicate with others will result in immediate disqualification.
12. The use of electronic gadgets, calculators, mobile phones, smart watches, or any written/printed material is strictly prohibited.
13. Rough work, if any, should be done only on the separate sheet provided for the purpose.
14. Ensure that the OMR Answer Sheet is duly filled and handed over to the Invigilator before leaving the examination hall.
15. Failure to submit the OMR Answer Sheet will result in cancellation of candidature.
16. All material provided, including rough sheets, must be returned before leaving the examination hall.

1. The fundamental principle of surveying is to work
   A. From part to whole B. From whole to part
   C. From low level to high level D. From high level to low level

2. A magnetic bearing is measured with respect to
   A. True meridian B. Arbitrary meridian
   C. Magnetic meridian D. Grid meridian

3. The difference between true bearing and magnetic bearing is called
   A. Dip B. Declination
   C. Local attraction D. Magnetic inclination

4. The difference between fore bearing and back bearing of a line should be
   A. 90° B. 180°
   C. 270° D. 360°

5. The difference in elevation between two points is determined by
   A. Chain surveying B. Photometry
   C. Plane table surveying D. Levelling

6. A contour line joins points having the same
   A. Slope B. Elevation
   C. Distance D. Bearing

7. In chain surveying, the main principle is
   A. Triangulation B. Traversing
   C. Levelling D. Contouring

8. A benchmark in levelling is a
   A. Temporary reference point B. Permanent reference point
   C. Any reference point D. Arbitrary point

9. Fly levelling is done to
   A. Establish BM B. Check accuracy of work
   C. Determine RLs D. Speed up the works

10. How would you check whether two walls meet at a right angle at a construction site?

A. Using a compass only
B. Using a plumb bob only
C. 3-4-5 method
D. Measuring the wall thickness

11. If the staff reading at a benchmark is 1.250 m and the RL of the benchmark is 100.000 m, the height of instrument is

A. 98.750 m
B. 100.000 m
C. 101.250 m
D. 102.500 m

12. If a contour map shows contour lines very close together, the ground is

A. Flat
B. Steep
C. A valley only
D. A water body

13. Full form of AAC as in AAC blocks is

A. Aerated Atactic concrete
B. Automatic Aerated Concrete
C. Atactic Autoclave Concrete
D. Autoclave aerated concrete

14. The standard size of a modular brick in India, excluding mortar, is

A. 190 × 90 × 90 mm
B. 200 × 100 × 100 mm
C. 230 × 110 × 75 mm
D. 250 × 120 × 75 mm

15. The efflorescence in bricks is caused mainly by

A. Excessive clay
B. Soluble salts
C. Excessive burning
D. Lack of water

16. The minimum compressive strength of a first-class brick is approximately

A. 3.5 MPa
B. 7 MPa
C. 10.5 MPa
D. 20 MPa

17. The initial setting time of ordinary Portland cement should not be less than

A. 10 minutes
B. 30 minutes
C. 60 minutes
D. 90 minutes

18. Gypsum is added to cement to increase

A. Strength
B. Workability
C. Setting time
D. Fineness

19. The soundness of cement is tested by

A. Vicat apparatus
B. Le Chatelier apparatus
C. Slump cone
D. Compression testing machine

20. The fineness of cement affects mainly

A. Colour
B. Rate of hydration and strength
C. Specific gravity only
D. Setting temperature only

21. The impact value of aggregate indicates its resistance to

A. Sudden shock or impact
B. Crushing under static load
C. Water absorption
D. Chemical attack

22. The specific gravity of normal-weight aggregate is approximately

A. 1.0-1.4
B. 1.6-1.8
C. 2.6–2.8
D. 4.5-4.8

23. The main purpose of water-cement ratio control is to control

A. Colour
B. Strength and durability
C. Aggregate size
D. Setting time only

24. The characteristic compressive strength of concrete is generally determined at

A. 3 days
B. 7 days
C. 28 days
D. 90 days only

25. The slump test measures the

A. Strength of concrete
B. Durability of fresh concrete
C. Workability of fresh concrete
D. Density of hardened concrete

26. The main function of reinforcement in RCC is to resist

A. Compression only
B. Tension
C. Temperature only
D. Shrinkage only

27. The yield strength of steel is determined using

A. Impact test
B. Hardness test
C. Compression test
D. Tensile test

28. Specific gravity of cement is about

A. 2.15
B. 3.15
C. 2.51
D. 3.51

29. Maximum size of aggregate for RCC work

A. 10 mm
B. 12 mm
C. 20 mm
D. 40 mm

30. A brick is dropped from about 1 m height and breaks into pieces. This indicates

A. Normal quality brick
B. Poor quality brick
C. First-class brick
D. Over-strength brick

31. Which simple field test can indicate the presence of excessive clay in sand?

A. Fineness test
B. Jar test
C. Soundness test
D. Box test

32. The slump of concrete is suddenly much higher than usual. This may indicate

A. Excess water
B. Excess steel
C. Low cement temperature
D. Smaller aggregate only

33. Strain is

A. Dimensionless
B. Measured in N
C. Measured in Pa
D. Measured in mm^2

34. Hooke's law is valid within the

A. Plastic limit
B. Elastic limit
C. Breaking point
D. Ultimate point

35. Young's modulus is the ratio of

A. Shear stress to shear strain
B. Normal stress to normal strain
C. Volumetric stress to strain
D. Load to area

36. The maximum bending moment in a simply supported beam carrying a central point load occurs at

A. Support
B. Quarter span
C. Centre of span
D. To be determined

37. Euler's buckling theory applies mainly to

A. Short columns
B. Long columns
C. Thick columns
D. Long beams

38. A perfect plane truss satisfies

A. $m = 2j - 3$
B. $m = 3j - 2$
C. $m = j - 3$
D. $m = 2j + 3$

39. In a perfect truss, members are generally subjected to

A. Bending only
B. Axial forces only
C. Torsion only
D. Shear only

40. The ratio of lateral strain to longitudinal strain is

A. Bulk modulus
B. Poisson's ratio
C. Young's modulus
D. Shear modulus

41. The point of contra-flexure occurs in

A. Cantilever beam
B. Simply supported beam
C. Continuous beam
D. Fixed beam

42. Bending Moment Diagram for cantilever with point load at free end is

A. Constant
B. Linear variation
C. Parabolic
D. Zero

43. Stress is defined as:

A. Load / Area
B. Strain / Area
C. Force × Distance
D. Energy / Volume

44. A beam is sagging at the centre under normal gravity loading. The bottom fibres are generally in

A. Compression B. Tension
C. No stress D. Torsion only

45. Limit State Design considers

A. Only collapse B. Only serviceability
C. Only working stress D. Both collapse and serviceability

46. The main reinforcement in a cantilever RCC beam is placed near the

A. Top face B. Bottom face
C. Neutral axis D. Side face only

47. Stirrups in an RCC beam are primarily provided to resist

A. Flexure B. Shear
C. Compression D. Temperature only

48. Development length is required to ensure

A. Proper bond between steel and concrete B. Reduced dead load
C. Increased cover only D. Reduced cement content

49. The minimum clear cover to reinforcement is provided mainly for

A. Appearance & finish B. Corrosion and fire protection
C. Increasing span D. Reducing dead load

50. Minimum cover for slab reinforcement is

A. 10 mm B. 15 mm
C. 20 mm D. 25 mm

51. Maximum percentage of tension reinforcement in beam

A. 2% B. 3%
C. 4% D. 5%

52. Development length depends on

A. Grade of concrete only B. Grade of steel only
C. Diameter of bar only D. Diameter of bar & bond stress

53. IS code for RCC design is

A. IS 456:2000 B. IS 383:1970

C. IS 10262:2019 D. IS 1893:2016

54. While compacting the concrete by a mechanical vibrator, the slump should not exceed

A. 25 mm B. 50 mm

C. 75 mm D. 100 mm

55. In a simply supported RCC beam, the main tension reinforcement is normally placed near the

A. Top B. Bottom

C. Centre of the beam D. Side face only

56. Closely spaced stirrups are generally required near beam supports because

A. Shear force is usually high there B. BM is always maximum there

C. Concrete width is less there D. All of the above

57. A simply supported beam of length L carries a triangular load (zero at ends, max W at center). Maximum shear force is:

A. WL/2 B. WL/4

C. WL/6 D. WL/8

58. The maximum bending moment for a simply supported beam with a UDL (W, which is load per unit length) over its entire length (L) is

A. $WL^2/2$ B. $WL^2/4$

C. $WL^2/8$ D. $WL^2/12$

59. Flow in a pipe is generally laminar when Reynolds number is less than approximately

A. 500 B. 2000

C. 10000 D. 50000

60. Bernoulli's theorem is based on conservation of

A. Mass B. Energy

C. Momentum only D. Temperature

61. The discharge through a pipe is given by

A. Q = A/V
B. Q = AV
C. Q = A + V
D. Q = V/A

62. The return period of a flood having annual exceedance probability of 1% is

A. 10 years
B. 50 years
C. 100 years
D. 1000 years

63. Manning's formula is used for

A. Pipe flow
B. Groundwater flow
C. Turbulent flow
D. Open channel flow

64. Most economical section of channel is

A. Rectangular
B. Half hexagon
C. Trapezoidal
D. Circular

65. During heavy rainfall, a catchment with more paved area will generally produce

A. More surface runoff
B. Less runoff
C. No runoff
D. Only groundwater recharge

66. The pH of neutral water at 25°C is approximately

A. 5
B. 6
C. 7
D. 9

67. The main purpose of coagulation in water treatment is to remove

A. Dissolved oxygen
B. Colloidal impurities
C. Chlorine
D. Hardness only

68. The most common disinfectant used in water treatment is

A. Chlorine
B. Nitrogen
C. Hydrogen per oxide
D. Carbon dioxide

69. BOD is a measure of

A. Organic pollution
B. Total dissolved salts
C. Turbidity only
D. Hardness only

70. A septic tank primarily provides

A. Aerobic treatment only B. Anaerobic treatment and sedimentation

C. Filtration only D. Chlorination only

71. The minimum diameter for sewers is

A. 75 mm B. 100 mm

C. 150 mm D. 200 mm

72. Self-cleansing velocity in sewers is generally

A. 0.25 m/s B. 0.5 m/s

C. 1.0 m/s D. 1.5 m/s

73. Chlorine demand is

A. Applied chlorine – residual chlorine B. Residual chlorine – applied chlorine

C. Applied chlorine × residual chlorine D. None of these

74. Aeration is used to remove

A. Hardness B. Odour

C. Chlorine D. Turbidity

75. If drinking water appears turbid, the treatment process primarily required is

A. Removal of suspended matter B. Addition of soil

C. Heating only D. Addition of cement

76. If sewage is backing up from a floor drain, the first practical check should be

A. Design of sewer network B. Slope of sewer

C. Number of users D. Blockage in the drainage line

77. If mosquitoes are breeding in stagnant water around a building, the most effective basic measure is to

A. Eliminate stagnant water and improve drainage B. Cover it with Soil

C. Add more water and dilute the stagnant water D. Increase sewage Discharge

78. The water content of soil is defined as the ratio of:

A. Weight of water to weight of dry soil
B. Weight of dry soil to weight of water
C. Volume of water to total volume
D. Weight of solids to total weight

79. The plasticity index is equal to

A. LL + PL
B. LL – PL
C. PL – LL
D. LL/PL

80. The permeability of soil is generally highest for

A. Clay
B. Silt
C. Sand and gravel
D. Organic soil

81. Compaction of soil generally increases

A. Void ratio
B. Dry density
C. Water content
D. Compressibility

82. Water accumulating near a foundation can be harmful mainly because it may

A. Reduce soil strength and cause settlement problems
B. Reduce brick strength by soaking
C. Improve all soil conditions
D. Eliminate the need for drainage

83. The rate analysis of an item includes

A. Materials, labour, equipment and overheads
B. Material cost
C. Labour cost
D. Profit

84. Liquidated damages in a contract are generally imposed for

A. Delay attributable to the contractor
B. Increase in rainfall only
C. Delay due to Force Majeure
D. Suspension of works

85. Security deposit in CPWD contracts is generally

A. 2%
B. 5%
C. 10%
D. 15%

86. Earnest money is

A. Payment to contractor
B. Retention money
C. Deposit with tender
D. Security Deposit

87. Measurement of brickwork is in

A. m^2
B. m^3
C. kg
D. numbers

88. Escalation clause deals with

A. Time extension
B. Quality control
C. Price variation
D. Labour laws

89. Binding material used in WBM is

A. Cement
B. Bitumen
C. Stone dust
D. Sand

90. The ruling gradient is

A. The maximum gradient normally adopted in design
B. The minimum possible gradient
C. The gradient of a bridge only
D. The gradient at an intersection only

91. Super-elevation is provided on horizontal curves to counteract

A. Centrifugal force
B. Gravity only
C. Wind pressure only
D. Braking force only

92. Sight distance is important primarily for

A. Safe stopping and overtaking
B. Increasing pavement thickness
C. Determining soil classification
D. Measuring rainfall

93. Camber for bituminous road is

A. 1–2%
B. 2–3%
C. 3–4%
D. 4–5%

94. Transition curve is

A. Circular
B. Parabolic
C. Spiral
D. Elliptical

95. Traffic volume is measured in

A. PCU B. VPH

C. ADT D. VPD

96. CAD stands for

A. Computer Aided Drafting B. Computer Assisted Drawing

C. Computer Aided Design D. Computer Automated Design

97. In AutoCAD, the command commonly used to create a line is

A. LINE B. CIRCLE

C. TRIM D. OFFSET

98. The TRIM command is used to

A. Extend objects B. Remove portions of objects

C. Create circles D. Change layers only

99. If two lines need to be joined with a rounded corner in AutoCAD, the suitable command is

A. FILLET B. JOIN

C. ARRAY D. HATCH

100. If a drawing is not to scale, the correct dimension should be taken from

A. Written dimension B. Measurement with a ruler on the drawing

C. Visual estimation D. Screen size

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