

# INDIAN INSTITUTE OF TECHNOLOGY, JODHPUR

TEST PAPER FOR THE POST OF JUNIOR Technician (Civil)

Advt (21)

Duration: 90 min.  
Maximum marks: 100

Name: \_\_\_\_\_

Address: \_\_\_\_\_

**Note:**

1. Tick the correct answer
  2. Each question carry equal marks
  3. No negative marking
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1. The difference between the most probable value of a quantity and its observed value is
  - a) True error
  - b) Weighted observation
  - c) Conditional error
  - d) Residual error
  
2. Geodetic surveying is different from plane surveying because is
  - a) The curvature of the earth
  - b) The large difference of elevations between various points
  - c) Coverage of very large area
  - d) Undulations of the topography
  
3. The main difference between an optical square and a prism square is
  - a) Difference in principle of working
  - b) That optical square is more accurate than prism square
  - c) That no adjustment is required in a prism square since the angle between the reflecting surface cannot be changed
  - d) All of the above
  
4. If the fore bearing of a line AB is  $35^\circ$  and that of line BC  $15^\circ$ , then the included angle between the lines is
  - a)  $20^\circ$
  - b)  $50^\circ$
  - c)  $160^\circ$
  - d)  $230^\circ$

5. For which of the following permanent adjustments of Theodolite, the spire test is used?
- a) Adjustment of plate levels
  - b) Adjustment of line of sight
  - c) Adjustment of horizontal axis
  - d) Adjustment of altitude bubble and vertical index frame
6. If the R.L. of a B.M. is 100.00 m, the back sight is 1.215 m and the foresight is 1.870 m, the R.L. of the forward station is
- a) 99.345 m
  - b) 100.345 m
  - c) 100.655 m
  - d) 101.870 m
7. Direct method of contouring is
- a) A quick method
  - b) Adopted for large surveys only
  - c) Most accurate method
  - d) Suitable for hilly terrains
8. The angle between the prolongation of the preceding line and the forward line of a traverse is called
- a) Deflection angle
  - b) Included angle
  - c) Direct angle
  - d) None of the above
9. The true length of a line is known to be 200 m. When this is measured with a 20 m tape, the length is 200.80 m. The correct length of 20 m tape is
- a) 19.92 m
  - b) 19.98 m
  - c) 20.04 m
  - d) 20.08 m
10. Surface tension of water
- a) Increase with decrease in temperature
  - b) Decreases with decrease in temperature
  - c) Is independent of temperature
  - d) None of above

11. Which of the following is used to measure the discharge?
- a) Current meter
  - b) Venturimeter
  - c) Pitot tube
  - d) Hotwire anemometer
12. The losses are more in
- a) Laminar flow
  - b) Transition flow
  - c) Turbulent flow
  - d) Critical flow
13. A hyetograph is a graphical representation of
- a) Rainfall intensity and time
  - b) Rainfall depth and time
  - c) Discharge and time
  - d) Cumulative rainfall and time
14. The depth of water required to bring the soil moisture content of a given soil up to its field capacity is called
- a) Hygroscopic water
  - b) Equivalent moisture
  - c) Soil moisture deficiency
  - d) Pellicular water
15. In CBR test the value of CBR is calculated at
- a) 2.5 mm penetration only
  - b) 5.0 mm penetration only
  - c) 7.5 mm penetration only
  - d) Both 2.5 mm and 5.0 mm penetrations
16. Which of the following test measures the toughness of road aggregates?
- a) Crushing strength test
  - b) Abrasion test
  - c) Impact test
  - d) Shape test

17. Which of the following represents hardest grade of bitumen?

- a) 30/40
- b) 60/70
- c) 80/100
- d) 100/120

18. Disinfection efficiency is

- a) Reduced at higher pH value of water
- b) Unaffected by pH value of water
- c) Increased at higher pH value of water
- d) Highest at pH value equal to 7

19. The type of valve which allows water to flow in one direction but prevents its flow in the reverse direction is

- a) Reflux valve
- b) Sluice valve
- c) Air relief valve
- d) Pressure relief valve

20. Select the correct statement.

- a) 5 day BOD is the ultimate BOD
- b) 5 day BOD is greater than 4 day BOD keeping other conditions same
- c) 5 day BOD is less than 4 day BOD keeping other conditions same
- d) BOD does not depend on time

21. Which of the following methods is most accurate for determination of the water content of soil?

- a) Oven drying method
- b) Sand bath method
- c) Calcium carbide method
- d) Pycnometer method

22. A pycnometer is used to determine

- a) Water content and voids ratio
- b) Specific gravity and dry density
- c) Water content and specific gravity
- d) Voids ratio and dry density

23. The water content of soil, which represents the boundary between plastic state and liquid state, is known as
- Liquid limit
  - Plastic limit
  - Shrinkage limit
  - Plasticity index
24. Le chatelier's device is used for determining the
- Setting time of cement
  - Soundness of cement
  - Tensile strength of cement
  - Compressive strength of cement
25. For testing compressive strength of cement, the size of cube used is
- 50 mm
  - 70.6 mm
  - 100 mm
  - 150 mm
26. A good brick, when immersed in water bath for 24 hours, should not absorb more than
- 20% of its dry weight
  - 30% of its saturated weight
  - 10% of its dry weight
  - 20% of its saturated weight
27. The compressive strength of 100 mm cube as compared to 150 mm cube is always
- Less
  - More
  - Equal
  - None of the above
28. The fineness modulus of fine aggregate is in the range of
- 2.0 to 3.5
  - 3.5 to 5.0
  - 5.0 to 7.0
  - 6.0 to 8.5

29. If the depth of actual neutral axis in a beam is more than the depth of critical neutral axis, then the beam is called
- a) Balanced beam
  - b) Under-reinforced beam
  - c) Over-reinforced beam
  - d) None of the above
30. The slab is designed as one way if the ratio of long span to short span is
- a) Less than 1
  - b) Between 1 and 1.5
  - c) Between 1.5 and 2
  - d) Greater than 2
31. For a reinforced concrete section, the shape of shear stress diagram is
- a) Wholly parabolic
  - b) Wholly regular
  - c) Parabolic above neutral axis and rectangular below neutral axis
  - d) Rectangular above neutral axis and parabolic below neutral axis
32. Poisson's ratio for concrete
- a) Remains constant
  - b) Increase with richer mixes
  - c) Decreases with richer mixes
  - d) None of the above
33. Bulking of sand is maximum if moisture content is about
- a) 2%
  - b) 4%
  - c) 6%
  - d) 10%
34. A (geographic) field is a geographic phenomena for which, for every point in the study
- a) A value can be determined
  - b) A value cannot be determined
  - c) A value is not relevant
  - d) A value is missing

35. Interpolation is made possible by a principle called
- a) A Spatial Autocorrelation
  - b) Spatial auto-correction
  - c) Thematic Autocorrelation
  - d) Thematic auto-correction
36. The fundamental principle which refers to the fact that locations that are closer together are more likely to have similar values than locations that are far apart, is commonly referred to as
- a) Tobler's First law of Geography
  - b) Kepler's First law of Geography
  - c) Anthony's First law of Geography
  - d) Thompson's First law of Geography
37. Contours of different elevations may cross each other only in the case of
- a) An overhanging cliff
  - b) A vertical cliff
  - c) A saddle
  - d) An inclined plane
38. The extension of a text file (i.e Notepad file) is
- a) .text
  - b) .tet
  - c) .txt
  - d) .tft
39. We can insert a page number at
- a) Header
  - b) Footer
  - c) Both A & B
  - d) None
40. Which function in Excel tells how many numeric entries are there?
- a) NUM
  - b) COUNT
  - c) SUM
  - d) CHKNUM

41. What type of chart will you use to compare performance of two employees in the year 2017?
- a) Column Chart
  - b) Line Chart
  - c) Pie Chart
  - d) Dot Chart
42. Free of cost repair of software bug available at Internet is called
- a) Version
  - b) Ad-on
  - c) Tutorial
  - d) Patch
43. In internet terminology IP means
- a) Internet Provider
  - b) Internet Protocol
  - c) Internet Procedure
  - d) Internet Processor
44. Size of Theodolite is specified by
- a) The length of telescope
  - b) The diameter of vertical circle
  - c) The diameter of lower plate
  - d) The diameter of upper plate
45. If “Fore bearing” of a line is S  $49^{\circ} 52'$  E (assuming there is no local attraction), the “Back bearing” of the line will be
- a) S  $52^{\circ} 49'$  E
  - b) S  $49^{\circ} 52'$  E
  - c) N  $49^{\circ} 08'$  E
  - d) N  $49^{\circ} 52'$  W
46. A fully saturated soil is said to be
- a) One phase system
  - b) Two phase system with soil and air
  - c) Two phase system with soil and water
  - d) Three phase system

47. Rate of change of bending moment is equal to

- a) Shear force
- b) Deflection
- c) Slope
- d) Rate of loading

48. The main ingredients of Portland cement are

- a) Lime and silica
- b) Lime and alumina
- c) Silica and alumina
- d) Lime and iron

49. Contour interval is

- a) The vertical distance between two consecutive contours
- b) The horizontal distance between two consecutive contours
- c) The vertical distance between two points on same contour
- d) The horizontal distance between two points on same contour

50. Penetration test on bitumen is used for determining its

- a) Grade
- b) Viscosity
- c) Ductility
- d) Temperature susceptibility

