ROLL NUMBER

WRITTEN TEST FOR THE POST OF JUNIOR TECHNICAL ASSISTANT (CIVIL) – A

DATE : 03/07/2017   TIME : 09.30 AM

DURATION : 90 MINUTES   TOTAL MARKS : 80

INSTRUCTIONS TO THE CANDIDATE

1. Write your Roll Number on the top of the Question Booklet and in the OMR sheet.

2. Each question carries 1 mark.

3. There will not be any Negative Marking.

4. Darken only the bubble corresponding to the most appropriate answer.

5. Marking more than one answer will invalidate the answer.

6. Candidate should sign on the question paper and OMR sheet.

7. Candidate should hand over the question paper and OMR sheet to the invigilator before leaving the examination hall.

Signature of the Candidate

1. In a stress-strain plot, the following points appear: a) Limit of proportionality; b) Elastic limit; c) Yield point; d) Ultimate strength and e) Point of rupture. The correct sequence of occurrence of these points is

    (A) a-b-c-d-e   (B) e-d-c-b-a   (C) a-c-b-d-e   (D) b-a-c-d-e

2. When a material is axially loaded for a long time, it develops certain type of additional strain called as

    (A) Axial strain   (B) Radial strain   (C) Creep   (D) Shrinkage

3. The effective length for a fixed-free (one end fixed and other is free or supporting a load) type of column length L as used in calculating the Euler's crippling load is

    (A) L   (B) 0.5L   (C) 0.85L   (D) 2L

4. If the crushing load of a column is 3000 KN and the Euler load is 2000 KN, then the Rankine load is

    (A) 1200 KN   (B) 3000 KN   (C) 2000 KN   (D) 1000 KN

5. In bending of beam, the point where no bending moment occurs is known as

    (A) Point of zero shear   (B) Point of contraflexure

    (C) Point of buckling   (D) Point of maximum shear

6. The best example of rigid pavement is

    (A) Concrete road   (B) Bitumen road

    (C) Gravel road   (D) Water bound macadam road

7. If a simply supported beam with elastic modulus E & moment of inertia I, of span length L carries a point of load W at the mid-span; the downward deflection under the load will be

    (A) $WL^3/8EI$ (B) $WL^3/48EI$ (C) $WL^3/12EI$ (D) $2WL^3/9EI$

8. The shape factor of a rectangular beam of width b and depth d is

    (A) 1.00   (B) 1.20   (C) 1.25   (D) 1.50

9. To prevent flash setting of cement, which of the following is added to cement?

    (A) Fly ash   (B) Silica fume   (C) Gypsum   (D) Lime

10. The Le Chatlier test on cement pastes detects unsoundness due to the following

    (A) Alumina content   (B) Magnesium oxide

    (C) Free lime content   (D) Iron oxide content

11. Usually, there is an increase in the volume of sand caused by the films of water pushing the sand particles apart. This effect is called as

    (A) Caving   (B) Boiling

    (C) Bulking   (D) Expansion

12. Which of the following is true for Project evaluation and review technique (PERT)?

    (A)It is event oriented and is a tool for planning

    (B)It is activity oriented and extensively used in construction

    (C)It uses cost as a critical input factor

    (D)It minimizes the importance of events

13. Pre chlorination is done to:

    (A) Kill bacteria   (B) Inactive viruses

    (C) Reduce taste and odours   (D) Reduce quantity of chlorine used

14. Copper Sulphate is used in treatment of water for controlling

    (A) Algae   (B) Silt   (C) Bacteria   (D) Mineral matter

15. BOD test is standardized at

    (A) $10°$ and 10 days   (B) $20°$ and 5 days   (C) $37°$ and 3 days   (D) $50°$ and 2 days

16. The ratio of the volume of water present in a given soil mass to the total volume of its voids, is known

    (A)Porosity   (B) Void ratio   (C) Percentage of voids   (D) Degree of saturation

17. The moisture content of a soil, below which the soil volume becomes constant, is called the

    (A)Liquid limit   (B) Plastic limit   (C) Shrinkage limit   (D) Plasticity Index

18. Latitude of a line is obtained by multiplying its length by ------------ of its reduced bearing.

    (A) Cosine   (B) sine   (C) tangent   (D) radians

19. The minimum diameter of working chamber of a circular manhole should be

    (A) 1.2m   (B) 0.9m   (C) 0.5m   (D) 2m

20. As compared to temperature of water, the temperature of sewage is:

    (A)Lower   (B) Higher   (C) same   (D) Depends upon the atmosphere conditions

21. Alluvial soils are transported by

    (A)Winds   (B) Glaciers   (C) Water   (D) Gravity

22. The angle of slopes are measured using

    (A) Planimeter   (B) Altimeter   (C) Optical square   (D) Clinometer

23. The cambium layer exists between

    (A) Heartwood and pith   (B) Bark and heartwood

    (C)Bark and sapwood   (D) Pith and sap wood

24. A material capable of absorbing large amount of energy is known as

    (A) Ductile   (B) Resilient   (C) Tough   (D) shock proof

25. Raft foundation is generally preferred to when the area required for individual footing is more than _____ to total area.

    (A) 20%   (B) 30%   (C) 40%   (D) 50%

26. The major constituent of fire clays is
    (A) Hydrocarbon   (B) Lime   (C) Iron oxide   (D) Hydrated aluminium silicate
27. A curve of varying radius is known as
    (A) Simple curve (B) Compound curve   (C) Reverse curve   (D) Transition curve
28. White cement should have the least percentage of
    (A) Aluminium oxide   (B) Iron oxide (C) Silica   (D) Magnesium oxide
29. The kern area of a solid circular section column of diameter D is a concentric circle of diameter
    (A) D/6   (B) D/4   (C) D/8   (D) D/3
30. Local attraction affects which of the following instrument?
    (A) Compass   (B) Dumpy level   (C) Planimeter   (D) Theodolite
31. The damp proof course (DPC) is measured in
    (A) Cub m   (B) Sq. m   (C) m   (D) 10m
32. The interior angle calculated from the bearings observed at the?
    (A) Same station   (B) End station   (C) succeeding station   (D) Preceeding station
33. The value of dismantled materials is
    (A) Scrap value   (B) Salvage value   (C) Market value   (D) Book value
34. The dip along magnetic equator is
    (A) 270⁰   (B) 180⁰   (C) 90⁰   (D) 0⁰
35. Which instrument gives directly the magnetic bearings of lines?
    (A)Prismatic compass   (B) Surveyor's compass
    (C) Plane table   (D) Magnetic compass
36. Seasoning of timber is done
    (A)To make it water proof   (B) To paint its surface
    (C) To increase its temperature   (D) To remove water
37. Sandstone is
    (A)Igneous rock   (B) Sedimentary rock   (C) Volcanic rock   (D) Plutonic rock
38. The error in measured length due to sag of chain or tape is
    (A) Positive error   (B) Negative error
    (C) Compensating error   (D) Instrumental error
39. The arrangement of supporting an existing structure by providing supports underneath, is known as
    (A) Shoring   (B) Underpinning   (C) Jacking   (D) Piling
40. The depth of an arch is the distance between
    (A) Ground level and springing line
    (B) Crown and springing line
    (C) Crown and ground level
    (D) Intrados and extrados

41. When the bubble of the level tube of a level remains central
    (A) Line of sight is horizontal   (B) Axis of the telescope is horizontal
    (C) Line of sight is inclined   (D) Geometrical axis of the telescope is horizontal

42. The direction of steepest slope on a contour is
    (A) Along the contour   (B) At an angle of 45° to the contour
    (C) At right angles to the contour   (D) At an angle of 60° to the contour

43. Strength of concrete increases with
    (A) Increase in water cement ratio   (B) Increase in fineness of cement
    (C) Decrease in curing time   (D) Decrease in size of aggregate

44. The permissible value of span/depth ratio will be highest in the case of
    (A) A simply supported beam   (B) A cantilever beam
    (C) A continuous beam   (D) It will be same for all cases

45. Laterite is chemically classified as
    (A) Calcareous rock   (B) Argillaceous rock
    (C) Siliceous rock   (D) Metamorphic rock

46. An assembled product made up of veneers and adhesives are called
    (A) Batten   (B) Plank   (C) Board   (D) Plywood

47. A fixed point of reference of known elevation is called
    (A) Change point   (B) Station point   (C) Bench mark   (D) Datum

48. The most common coagulant is
    (A) Magnesium sulphate   (B) Alum   (C) Chlorine   (D) Bleaching powder

49. As per IS 456-2000. In the limit state design of a flexural member, the strain in reinforcing bar under tension at ultimate state should not be less than
    (A) f_y/E_s (B) $f_y/E_s + 0.002$ (C) $f_y/1.15E_s$ (D) $f_y/1.15\,E_s + 0.002$

50. The maximum bending moment of a cantilever beam lies at
    (A) The free end   (B) L/2 from the free end
    (C) L/2 from the fixed end   (D) The fixed end

51. The number of bricks per cubic metre of brickwork in CM 1: 5 is about
    (A) 200numbers   (B) 500numbers   (C) 300numbers   (D) 600 numbers

52. The maximum shear stress in a rectangular beam is -------- times of average shear stress
    (A) 1.15   (B) 1.25   (C) 1.5   (D) 1.75

53. The vertical member running through middle of a shutter frame is
    (A) style   (B) reveal   (C) mullion   (D) post

54. The wedge shaped bricks forming an arch ring, are called
    (A) soffits   (B) voussiors   (C) Haunchs   (D) spandrils

55. Pitot tubes is used to measure the velocity of flow in
    (A) open channels   (B) closed pipes
    (C) open channels as well as closed pipes   (D) reservoirs

56. In water bound macadam roads, binding material is
    (A) sand   (B) stone dust   (C) cement   (D) brick dust

57. The width of formation of a road means the width of
    (A) Carriage way   (B) Pavement and shoulders
    (C) Embankment at ground level   (D) Embankment at top level

58. Venturimeter make use of
    (A) Pascal's rule   (B) Bernoulli's theorem   (C) Law of continuity   (D) Darcy's law

59. Imaginary line passing through points having equal magnetic declination is termed as
    (A) isogonic line   (B) agonic line   (C) isoclinic line   (D) Contour line

60. The hardness limit for potable water ranges between
    (A) 50-65 ppm   (B) 75-115 ppm   (C) 150-250 ppm   (D) 300-550p

61. The aeration of water is done for the removal of
    (A) colour   (B) turbidity   (C) hardness   (D) odour

62. Ultra violet rays are highly effective for disinfection of
    (A) clear waters   (B) hard waters
    (C) Highly turbid waters   (D) water rich in suspended solids

63. Colour of fresh sewage is
    (A) Green   (B) Brown   (C) Grey   (D) Pink

64. The pipe having minimum diameter in plumbing systems
    (A) Waste pipe   (B) Soil pipe   (C) Anti syphonage pipe   (D) Ventilating pipe

65. The rate of change of bending moment is equal to
    (A) Deflection   (B) Slope   (C) Poisson's ratio   (D) Shear force

66. Flow curve is drawn from the test data of
    (A) Permeability test   (B) Pipette analysis test
    (C) Liquid limit test   (D) unconfined compression test

67. For the determination of water content, the wet soil is dried in an oven for 24 hours at
    (A) 105° C   (B) 100° C   (C) 50° C   (D) 155° C

68. Method more suitable for determining the permeability of clayey soils is
    (A) Constant head permeameter   (B) Falling head permeameter
    (C) Horizontal permeameter   (D) Compound permeameter

69. A simply supported beam of span L carries w KN/m uniformly distributed load over its span will have zero shear force at
    (A) Mid span   (B) Ends
    (C) Both of ends and middle span   (D) ¼ from either ends

70. Along the neutral axis of a simply supported beam
    (A) Fibres do not undergo strain   (B) Fibres undergo minimum strain
    (C) Fibres undergo maximum strain   (D) None of the above

71. Maximum spacing of shear reinforcement should be
    (A) 400mm   (B) 300mm   (C) 450mm   (D) 350mm

72. The window provided in a flat roof of a room, is known

    (A) Dormer window   (B) lantern window   (C) louvered window   (D)sky window

73. The performance of a specific task in CPM is known as

    (A) Dummy   (B) Event   (C) Activity   (D) contract

74. Ornamental moulded course placed on the top of a wall is

    (A) cornice   (B) coping   (C) frieze   (D) lintel

75. The main reinforcements in R.C.C. cantilever members is placed at

    (A) Top fibres   (B) side fibres   (C) Bottom fibres   (D) none of above

76. The weight of steel per cubic meter is approximately

    (A) 800kg   (B) 2870kg   (C) 6950kg   (D) 7900kg

77. The rocks which can be splitted up into thin sheets are known as

    (A) Un stratified rocks   (B) Stratified rocks   (C) Foliated rocks   (D) Intrusive rocks

78. An angles of 45° with a chain line may be set out with

    (A) Optical square   (B) Open cross staff
    (C) French cross staff   (D) Prismatic square

79. A good quality cement should have higher percentage of

    (A) Free lime   (B) Silica   (C) Dicalcium silicate   (D) Tri- calcium silicate

80. Thinner used for oil paints is

    (A) Turpentine   (B) Water   (C) Carbon tetra chloride   (D) Aluminium oxide

JR. TECH.ASST (CIVIL)-ANSWER KEY (03/07/2017)

1	A	31	B	61	D
2	C	32	A	62	A
3	D	33	A	63	C
4	A	34	D	64	C
5	B	35	D	65	D
6	A	36	D	66	C
7	B	37	B	67	A
8	D	38	A	68	B
9	C	39	B	69	A
10	C	40	D	70	A
11	C	41	A	71	B
12	A	42	C	72	B
13	C	43	B	73	C
14	A	44	C	74	A
15	B	45	B	75	A
16	D	46	D	76	D
17	C	47	C	77	C
18	A	48	B	78	C
19	A	49	D	79	D
20	B	50	D	80	A
21	C	51	B		
22	D	52	C		
23	B	53	C		
24	C	54	B		
25	D	55	C		
26	D	56	B		
27	D	57	D		
28	B	58	B		
29	B	59	A		
30	A	60	B		