

WRITTEN TEST FOR THE POST OF ASSISTANT ENGINEER (Civil), SCTIMST

Date: 03.06.2018

Time : 3.00 p.m

Duration : 1 hour

Total Marks :50

(NOTE : Each question carries equal marks)

1. Mild steel used in RCC structures conforms to
 - (a) IS : 432
 - (b) IS : 1566
 - (c) IS : 1786
 - (d) IS : 2062

2. Which of the following types of lime is used for plastering and white washing?
 - (a) Quick Lime
 - (b) Slaked Lime
 - (c) Hydraulic Lime
 - (d) Fat Lime

3. Which of the following acts as retarder for the concrete?
 - (a) Calcium chloride
 - (b) Calcium lignosulphonate
 - (c) Calcium stearate
 - (d) Aluminium powder

4. Identify the *wrong* statement.
 - (a) Bulking of sand can go up to 40%.
 - (b) Bulking of sand is maximum at 4.6% moisture content.
 - (c) Bulking of sand is considered in weigh batching of concrete mix.
 - (d) Bulking of sand occurs due to free moisture film formation over sand grain

5. Strength based classification of bricks is made on the basis of
 - (a) IS : 3101
 - (b) IS : 3102
 - (c) IS : 3495
 - (d) IS : 3496

6. Moment of inertia of rectangular section having width b and depth d about its horizontal centroidal axis is
 - (a) $bd^3/12$
 - (b) $db^3/12$
 - (c) $db^3/3$
 - (d) $d^3b/3$

7. A linear force-deformation relation is obtained in materials
 - (a) having elastic stress-strain property
 - (b) having plastic stress-strain property
 - (c) following Hooke's law
 - (d) which are rigid elastic materials

8. The property of a material by which it can be beaten or rolled into plates, is called
 - (a) malleability
 - (b) ductility
 - (c) plasticity
 - (d) elasticity

9. The top diameter bottom diameter and the height of the steel mould used for slump test are
 - (a) 10 cm, 20 cm, 30 cm
 - (b) 10 cm, 30 cm, 20 cm
 - (c) 20 cm, 10 cm, 30 cm
 - (d) 20 cm, 30 cm, 10 cm

10. The early high strength of rapid hardening cement is due to its
 - (a) increased content of gypsum
 - (b) burning at high temperature
 - (c) increased content of cement
 - (d) higher content of tricalcium

11. In paints, methylated spirit, naphtha and turpentine are used as.
 - (a) Base
 - (b) Binder
 - (c) Solvent
 - (d) Extender

12. Coarse sand has a fineness modulus in the range of
 - (a) 2.2 – 2.4
 - (b) 2.4 - 2.6
 - (c) 2.6 – 2.9
 - (d) 2.9 – 3.2

13. Under heat and pressure, granite can transform into
 - (a) quartzite
 - (b) marble
 - (c) slate
 - (d) gneiss

14. Aluminium is anodized to protect it from weathering effect by forming a surface coat of
 - (a) Aluminium carbide
 - (b) Aluminium borate
 - (c) Aluminium oxide
 - (d) Red lead

15. Quartzite and marble are by nature
 - (a) volcanic
 - (b) plutonic
 - (c) sedimentary
 - (d) metamorphic

16. Di-calcium silicate (C_2S):
 - (a) hydrates rapidly
 - (b) generates less heat of hydration
 - (c) hardens rapidly
 - (d) has less resistance to sulphate attack

17. The resistance of an aggregate to wear is known as
 - (a) impact value
 - (b) abrasion resistance
 - (c) shear resistance
 - (d) crushing resistance

18. Water-cement ratio is measured ____ of water and cement used per cubic metre of concrete.
 - (a) volume by volume
 - (b) weight by weight
 - (c) weight by volume
 - (d) volume by weight

19. To prevent segregation. the maximum height for placing concrete, is
 - (a) 100 cm
 - (b) 125 cm
 - (c) 150 cm
 - (d) 200cm

20. An aggregate is said to be flaky, if its least dimension is less than
 - (a) $\frac{2}{3}$ of mean dimension
 - (b) $\frac{1}{2}$ of mean dimension
 - (c) $\frac{3}{5}$ of mean dimension
 - (d) $\frac{3}{4}$ of mean dimension

21. For batching 1:2:4 concrete mix by volume the ingredients required per bag (50 kg) of cement are
 - (a) 100 litres of fine aggregate : 140 litres of coarse aggregate
 - (b) 100 kg of fine aggregate : 200 kg of coarse aggregate
 - (c) 70 kg of fine aggregate : 140 kg of coarse aggregate
 - (d) 70 litres of fine aggregate : 140 litres of coarse aggregate

22. The concrete cubes are prepared, cured and tested according to Indian Standards code number
 - (a) IS : 515
 - (b) IS : 516
 - (c) IS : 517
 - (d) IS : 518

23. Workability of concrete for a given water content is good if the aggregates are
- (a) angular aggregates
 - (b) flaky aggregates
 - (c) rounded aggregates
 - (d) irregular aggregates
24. Generally, strength of concrete is considered negligible/very low in
- (a) Compression
 - (b) Tension
 - (c) Fatigue
 - (d) None of the above
25. As the cement sets and hardens, it generates heat. This is called
- (a) Heat of hydration
 - (b) Latent heat
 - (c) Heat of vaporisation
 - (d) Sensible heat
26. In concrete while hand mixing is adopted, excess cement to be added is
- (a) 4%
 - (b) 10%
 - (c) 14%
 - (d) 20%
27. For constructing road pavements, the type of cement generally used is
- (a) ordinary Portland cement
 - (b) rapid hardening cement
 - (c) low heat cement
 - (d) blast furnace slag cement
28. A very comfortable type of stair for usage is
- (a) straight
 - (b) dog legged
 - (c) open newel
 - (d) circular
29. If the area of tension reinforcement provided is less than that required for a balanced section, then the RCC beam is called
- (a) over reinforced
 - (b) neutral reinforced
 - (c) under reinforced
 - (d) bottom reinforced
30. In limit state of collapse for direct compression, the maximum axial compressive strain in concrete is
- (a) 0.002
 - (b) 0.003
 - (c) 0.0035
 - (d) 0.004

31. A T-beam behaves as a rectangular beam of a width equal to its flange if its neutral axis
- (a) falls within the flange
 - (b) falls below the flange
 - (c) coincides with the geometrical centre of the beam
 - (d) falls below the centroidal axis of the beam
32. The minimum clear cover (in mm) for the main reinforcement in column, according to IS : 456-2000 is
- (a) 20
 - (b) 25
 - (c) 40
 - (d) 50
33. The diameter of longitudinal bars of a RCC column should never be less than
- (a) 6 mm
 - (b) 8 mm
 - (c) 10 mm
 - (d) 12 mm
34. As per IS : 800, the factor of safety adopted with respect to the yield stress of steel is
- (a) 1.45
 - (b) 1.5
 - (c) 1.67
 - (d) 2.0
35. A tie is a
- (a) tension member
 - (b) compression member
 - (c) flexural member
 - (d) torsion member
36. Bearing stiffeners are designed as
- (a) beams
 - (b) beam-ties
 - (c) ties
 - (d) column
37. The maximum allowable slenderness ratio for members carrying compressive load due to wind and seismic force only is
- (a) 180
 - (b) 250
 - (c) 350
 - (d) 250
38. The throat in a fillet weld is
- (a) large side of the triangle of the fillet
 - (b) hypotenuse of the triangle of the fillet
 - (c) smaller side of the triangle of the fillet
 - (d) perpendicular distance from the root to the hypotenuse

39. The size of a river is identified by
(a) diameter of shank
(b) diameter of head
(c) length of shank
(d) shape of head
40. Which of the following flow constants does not have any unit?
(a) Chezy's C
(b) Manning's N
(c) Both Chezy's C and Manning's N
(d) None of the above
41. Horizontal stiffeners are needed in plate girders if the thickness of web is less than
(a) 6 mm
(b) Depth/200
(c) Span/500
(d) Flange thickness
42. Permissible stress may also be known as
(a) ultimate stress
(b) working stress
(c) limit stress
(d) yield stress
43. The maximum permissible stress for power driven field rivet is bearing on rivet is
(a) 100 N/mm²
(b) 250 N/mm²
(c) 270 N/mm²
(d) 300 N/mm²
44. The volume of voids to the total volume of soil is known as
(a) porosity
(b) void ratio
(c) air ratio
(d) air content
45. In a cantilever beam subjected to general loading, the maximum bending moment is at
(a) fixed end
(b) free end
(c) mid-span
(d) quarter-span
46. Manometer is a device used for measuring
(a) Velocity
(b) Pressure
(c) Density
(d) Discharge

47. Capillarity is due to
- I. surface tension
 - II. cohesion
 - III. viscosity
 - IV. vapour pressure
 - V. weight density of liquid
- (a) II, III
(b) III
(c) I
(d) II, III, V
48. Flow of water through a passage under atmospheric pressure is called
- (a) Pipe flow
 - (b) Uniform flow
 - (c) Open channel flow
 - (d) Non-uniform flow
49. The discharge through a V-notch varies
- (a) proportional to head (H)
 - (b) inversely proportional to angle Θ
 - (c) proportional to $H^{5/2}$
 - (d) inversely proportional to $\tan \Theta/2$
50. Which of the following statements in respect of a map A having scale 1 : 1000 and another map B having scale 1 : 5000 is true?
- (a) Map A is a large scale map compared to map B
 - (b) Map B is a large scale map compared to map A
 - (c) Map B is a more detailed map compared to map A
 - (d) None of the above

ANSWER KEY SHREE CHITRA			
SI No	Answer	SI No	Answer
1	a	26	b
2	d	27	b
3	b	28	c
4	c	29	c
5	d	30	c
6	a	31	a
7	b	32	c
8	b	33	d
9	a	34	c
10	d	35	a
11	c	36	d
12	d	37	b
13	d	38	d
14	c	39	a
15	d	40	a
16	b	41	b
17	b	42	b
18	b	43	c
19	a	44	a
20	c	45	a
21	b	46	b
22	c	47	c
23	c	48	c
24	c	49	c
25	a	50	a