SSC - JEn 2014 Objective Paper (Morning Session)

1. Mild steel used in RCC structures conforms to **[SSC-2014]**

(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? **[SSC-2014]**

(a) Quick lime (b) Slaked lime

(c) Hydraulic lime (d) Fat lime

3. Which of the following acts as retarder for the concrete? **[SSC-2014]**

(a) Calcium chloride (b) Calcium lignossulphonate

(c) Calcium stearate (d) Aluminium powder

4. Identify the wrong statement **[SSC-2014]**

(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 weight batching of concrete mix.

(d) Bulking of sand occurs due to free moisture film formation over sand grain

5. Strength based classification of bricks made on the basis of **[SSC-2014]**

(a) IS : 3101 (b) IS : 3102

(c) IS : 3495 (d) IS : 3496

6. In paints, methylated spirit, naphtha and turpentine are used as **[SSC-2014]**

(a) Base (b) Binder

(c) Solvent (d) Extender

7. Coarse sand has a fineness modulus the range of **[SSC-2014]**

(a) 2.2 – 2.4 (b) 2.4 – 2.6

(c) 2.6 – 2.9 (d) 2.9 – 3.2

8. Under heat and pressure, granite can transform into **[SSC-2014]**

(a) quartize marble (b) marble

(c) slate (d) gneiss

9. Aluminium is anodized to protect it from weathering effect by forming surface coat of **[SSC-2014]**

(a) Aluminium carbide (b) Aliminium barate

(c) Aluminium oxide (d) Red lead

10. Quartize and marble are by nature **[SSC-2014]**

(a) volcanic (b) plutonic

(c) sedimentary (d) metamorphic

11. Most accurate method of estimation is base on **[SSC-2014]**

(a) Building cost index estimate

(b) Plinth area estimate

(c) Detailed estimate

(d) Cube rate estimate

12. The annual instalment (I) of the sinking funds (S) over n years, at i rate of interest may be calculated from the formula **[SSC-2014]**

(a) $I = Si/(1 + i)^{n-1}$ (b) $I = Si/(1 + i)^{n-1}/i$

(c) $I = Si/(1 + i)^{n+1}/(1 + i)$ (d) $I = Si/(1 + i)$

13. The plan of a building is in the form of a rectangle with centre line dimensions of the outer walls as 10.3 m × 15.3 m. The thickness of the walls is superstructure is 0.3 m. Then its carpet area is **[SSC-2014]**

(a) 150 m^3 (b) 157.59 m^3

(c) 165.36 m^3 (d) 170 m^3

14. Pick up the item of work not included in the plinth area estimate **[SSC-2014]**

(a) Wall thickness (b) Room area

(c) Verandah area (d) Countryard area

15. One brick thickness of wall is roughly equal to **[SSC-2014]**

(a) 10 cm (b) 15 cm

(c) 20 cm (d) 30 cm

16. A work costing Rs. 20,000 is termed as **[SSC-2014]**

(a) Petty work (b) Minor work

(c) Major work (d) Minor project

17. The density of cement is taken to be **[SSC-2014]**

(a) 1000 kg/m^3 (b) 1250 kg/m^3

(c) 1440 kg/m^3 (d) 1800 kg/m^3

18. The damp proof course (D.P.C) of uniform thickness in a building having walls of different widths is measured in **[SSC-2014]**

(a) m^4 (b) m^3

(c) m^2 (d) m

19. Volume by Trapezoidal Formula Method determined by the formula **[SSC-2014]**

(a) $D\left\{\frac{A_0 + A_n}{2} + A_2 + A_4 + A_6 + ...A_{n-1}\right\}$

(b) $D\left\{\frac{A_1 + A_n}{2} + A_0 + A_1 + A_3 + ...A_{n-1}\right\}$

(c) $D\left\{\frac{A_0 + A_1}{2} + A_1 + A_3 + A_5 + ...A_{n-1}\right\}$

(d) $D\left\{\frac{A_0 + A_n}{2} + A_1 + A_2 + A_3 + A_4 + ...A_{n-1}\right\}$

20. The value of thge property at the end of its useful life (without being dismentled) is known as **[SSC-2014]**

(a) Salvage value (b) Scrap value

(c) Book value (d) Junk value

21. The multiplying constant for the tacheometer is, generally, kept as **[SSC-2014]**

(a) 100 (b) 20

(c) 40 (d) 60

22. The fundamental principle of surveying is to work from the **[SSC-2014]**

(a) Whole to part

(b) part to whole

(c) lower level to higher level

(d) higher level to lower level

23. Radiation, Intersection and Resection are **[SSC-2014]**

(a) Compass Surveying Techniques

(b) Chain Surveying Techaniques

(c) Levelling Techniques

(d) Plane Table Surveying Techniques

24. 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? **[SSC-2014]**

(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

25. The correction to be applied to each 30 m chain for a line measurement along a slope of 0 is **[SSC-2014]**

(a) 30 (1 – cos θ) (b) 30 (1 – sin θ)

(c) 30 (1 – tan θ) (d) 30 (1 – cot θ)

26. Narrowly spaced contour lines on a map shows that the area is **[SSC-2014]**

(a) Flat (b) Steeply sloped

(c) Vertical chff (d) Overhand cliff

27. The length of the tangent of a curve whose radius is T and angle of deflection Δ is **[SSC-2014]**

(a) $R \tan\frac{\Delta}{2}$ (b) $2R \sin\frac{\Delta}{2}$

(c) $2R \tan\frac{\Delta}{2}$ (d) $R \sin\frac{\Delta}{2}$

28. If whole circle bearing of a line is 210°0'0", its value in quandrantal bearing system is **[SSC-2014]**

(a) S 30° 0' 0" W (b) N 30° 0' 0" E

(c) S 30° 0' 0" E (d) N 30° 0' 0" W

29. The magnetic declination is the difference between **[SSC-2014]**

(a) True Meridian and False Meridian

(b) False Meridian and True Meridian

(c) True Meridian and Magnetic Meridian

(d) Magnetic Meridian and False Meridian

30. A staff reading taken on a point whose elevation is to be determined as a change point is called **[SSC-2014]**

(a) foresight reading (b) backsight reading

(c) intermediate sight (d) long sight

31. Clay is generally **[SSC-2014]**

(a) cohesive

(b) permeable

(c) having large particle size

(d) None of the above

32. The ratio $\frac{\text{Liquid limit} - \text{Water content}}{\text{Plasticity index}}$ for a soil mass is called **[SSC-2014]**

(a) Liquidity index (b) Shrinkage ratio
(c) Consistency index (d) Toughness index

33. The volume of voids to the total volume of soil is known as **[SSC-2014]**

(a) porosity (b) void ratio
(c) air ratio (d) air content

34. A fundamental equation of void ratio (e), specific gravity (G), water content (W) and the degree of saturation (S_p) is **[SSC-2014]**

(a) $e = \frac{WG}{S_P}$ (b) $W = \frac{eG}{S_P}$
(c) $G = \frac{eW}{S_P}$ (d) $S_P = \frac{eW}{G}$

35. Manometer is a device used for measuring **[SSC-2014]**

(a) Velocity (b) Pressure
(c) Density (d) Discharge

36. Capillarity is due to **[SSC-2014]**

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

37. Flow of water through a passage under atmospheric pressure is called **[SSC-2014]**

(a) Pipe flow (b) Uniform flow
(c) Open channel flow (d) Non-uniform flow

38. The discharge through a V-notch varies **[SSC-2014]**

(a) proportional to head (H)
(b) inversely proportional to angle θ
(c) proportional to $H^{5/2}$
(d) inversely proportional to tan θ/2

39. The dimension for angular velocity is **[SSC-2014]**

(a) T^2 (b) T^{-1}
(c) T^1 (d) T^{-2}

40. Which of the following flow constants does not have any unit? **[SSC-2014]**

(a) Chezy's C
(b) Manning's N
(c) Both Chezy's C and Manning's N
(d) None of the above

41. Each term of the Bernoulli equation represents **[SSC-2014]**

(a) energy per unit weight
(b) energy per unit mass
(c) energy per unit volume
(d) specific energy

42. Pressure in terms of metres of oil (specific gravity = 0.9) equivalent to 4.5 m of water of **[SSC-2014]**

(a) 4.05 (b) 5.0
(c) 3.6 (d) 0.298

43. Typically, a hydroelectric plant will have following hydraulic machine: **[SSC-2014]**

(a) Hydraulic Turbine (b) Hydraulic Pump
(c) Electric Motor (d) None of the above

44. Darcy – Weisbach equation to calculate the head loss due to friction for flow through pipes is applicable when the flow through the pipes can be **[SSC-2014]**

(a) laminar flow
(b) turbulent only
(c) both laminar and turbulent
(d) subcritical flow

45. The ratio of the quantity of water stored in the root zone of the crops to the quantity of water actually delivered in the field is known as **[SSC-2014]**

(a) water use efficiency
(b) water conveyance efficiency
(c) water application efficiency
(d) water storage efficiency

46. For unlined canals, the freeboard is measured from the **[SSC-2014]**

(a) full supply level to top of the bank
(b) top of the bank to bed of the canal
(c) full supply level to top of the dowel
(d) None of the above

47. The ruling minimum radius of the curve for ruling design speed V m/sec, coefficient of friction f, acceleration due to gravity g m/sec^2 and superelevation e is given by **[SSC-2014]**

(a) $V^2/(e - f)\ g$ (b) $V^2/(f - e)g$
(c) $V^2/(e + f)\ g$ (d) $V^2/(e + f)\ 2g$

48. Camber in the road is provided for **[SSC-2014]**

(a) countering the centrifugal force
(b) effective drainage
(c) having proper sight distance
(d) avoiding overturning

49. The standard 5-day BOD at 20°C, when compared to ultimate BOD is about **[SSC-2014]**

(a) 60% (b) 68%
(c) 80% (d) 90%

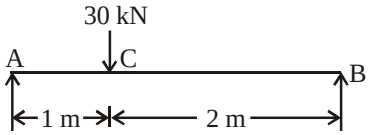
50. The global warming is caused mainly by **[SSC-2014]**

(a) NO_x (b) SO_x
(c) CO_2 (d) O_2

51. The maximum shear force in a simply supported beam of span L, subjected to a central point load, W is given by the following equation : **[SSC-2014]**

(a) $\frac{W}{2}$ (b) WL
(c) $WL^2/2$ (d) $WL^2/4$

52.



For simply supported beam is shown i Fig., the magnitude oif vertical reaction at 'B' is **[SSC-2014]**

(a) 20 kN (b) 18 kN
(c) 15 kN (d) 10 kN

53. "Poisson's ratio" is defined as the ratio of **[SSC-2014]**

(a) lateral strain to linear strain
(b) linear strain to lateral strain
(c) lateral stress to linear stress
(d) linear stress to lateral stress

54. If 'A' is the area of cross-section and 'I' is the moment of inertia of a given plane section, then radius of gyration (r) is given by the formula **[SSC-2014]**

(a) r = I/A (b) $r = \sqrt{I/A}$
(c) r = A/ I (d) $r = \sqrt{A/I}$

55. Strain energy due to axial deformation is given by **[SSC-2014]**

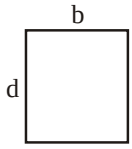
(σ : resultant stress
P : axial load
Δ : deformation
ε : strain
E : modulus of elasticity)

(a) $\sigma\varepsilon$ (b) $P\Delta$
(c) $\sigma^2/2E$ (d) $\frac{1}{2}P\Delta$

56. In a cantilever beam subjected to general loading, the maximum bending moment is at **[SSC-2014]**

(a) fixed end (b) free end
(c) mid-span (d) quarter-span

57.



Moment of inertia of rectangular section shown in Fig. about its horizontal centroidal axis is **[SSC-2014]**

(a) $db^3/12$ (b) $db^3/3$
(c) $bd^3/12$ (d) $bd^3/3$

58. Ratio of length of column to the minimum radius of gyration of the cross-sectional area of the column is known as **[SSC-2014]**

(a) Slenderness ratio (b) Bucking ratio
(c) Crippling ratio (d) Compressive ratio

59. A linear force-deformation relation is obtained in materials **[SSC-2014]**

(a) having elastic stress-strain property
(b) having plastic stress-strain property
(c) following Hooke's law
(d) which are rigid elastic materials

60. The property of a material by which can be beaten or rolled into plates, is called **[SSC-2014]**

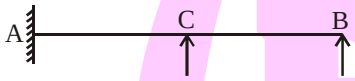
(a) malleability (b) ductility
(c) plasticity (d) elasticity

61. Which of the beam given in the following Figs. is a determinate beam? **[SSC-2014]**

(a) 

(b) 

(c) 

(d) 

62. The effective slenderness ratio cantilever column is **[SSC-2014]**

(a) 0.5 L/r (b) L/r
(c) $\sqrt{2}L / r$ (d) 2 L/r

63. The top diameter, bottom diameter and the height of the steel mould used slump test are **[SSC-2014]**

(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

64. The early high strength of rapid hardening cement is due to its **[SSC-2014]**

(a) increased content of gypsum
(b) burning at high temperature
(c) increased content of cement
(d) higher content of tricalcium

65. Di-calcium silicate (C_2S) **[SSC-2014]**

(a) hydrates rapidly
(b) generates less heat of hydration
(c) hardens rapidly
(d) has less resistance to sulphate attacks

66. Separation of coarse aggregates from concrete during transportation, is known as **[SSC-2014]**

(a) bleeding (b) creeping
(c) segration (d) evaporation

67. The resistance of an aggregate to wear is known is **[SSC-2014]**

(a) impact value (b) abrasion resistance
(c) shear resistance (d) crushing resistance

68. If fineness modulus of a sand is 2.5, it is graded as **[SSC-2014]**

(a) very fine sand (b) fine sand
(c) medium sand (d) coarse sand

69. Water-cement ratio is measured — of water and cement used per cubic metre of concrete **[SSC-2014]**

(a) volume by volume (b) weight by weight
(c) weight by volume (d) volume by weight

70. To prevent segregation, the maximum height for placing concrete, is **[SSC-2014]**

(a) 100 cm (b) 125 cm
(c) 150 cm (d) 200 cm

71. An aggregate is said to be flaky, if its least dimension is less than **[SSC-2014]**

(a) $\frac{2}{3}$ mean dimension (b) $\frac{1}{2}$ mean dimension
(c) $\frac{3}{5}$ mean dimension (d) $\frac{3}{4}$ mean dimension

72. The fineness of cement can be found out by sieve analysis using IS sieve number **[SSC-2014]**

(a) 20 (b) 10
(c) 9 (d) 6

73. For batching 1 : 2 : 4 concrete mix by volume the ingredients required per bag (50 kg) of cement are **[SSC-2014]**

(a) 100 litres of fine aggregates : 140 litres of coarse aggregates
(b) 100 kg of fine aggregates : 200 litres of coarse aggregates
(c) 70 kg of fine aggregates : 140 kg of coarse aggregates
(d) 70 litres of fine aggregates : 140 litres of coarse aggregates

74. Bulking is **[SSC-2014]**

(a) increase in volume of sand due to moisture which keeps sand particles a part

(b) increase in density of sand due to imputities like clay, organic matter

(c) ramming of sand so that it occupies minimum volume

(d) compacting of sand

75. The concrete cubes are prepared, cured and lested according to Indian Standards code number **[SSC-2014]**

(a) IS : 515 (b) IS : 516

(c) IS : 517 (d) IS : 518

76. Workability of concrete for a given water content is good if the aggregates are **[SSC-2014]**

(a) angular aggregates (b) flaky aggregates

(c) rounded aggregates (d) irregular aggregates

77. Generally, strength of concrete is considered negligible/very low in **[SSC-2014]**

(a) Compression (b) Tension

(c) Fatigue (d) None of the above

78. As the cement sets and hardens, it generates heat. This is called **[SSC-2014]**

(a) Heat of hydration (b) Latent heat

(c) heat of vaporisation (d) Sensible heat

79. In concrete, while hand mixing is adopted excess cement to be added is **[SSC-2014]**

(a) 4% (b) 10%

(c) 14% (d) 20%

80. For constructing road pavements, the type of cement generally used is **[SSC-2014]**

(a) ordinary Portland cement

(b) rapid hardening cement

(c) low heat cement

(d) blast furnace slag cement

81. A very comfortable type of stair for usage is **[SSC-2014]**

(a) straight (b) dog legged

(c) open newel (d) circular

82. If the area of tension reinforcement provided is less than required for a balanced section, then the RCC beam is called **[SSC-2014]**

(a) over reinforced (b) neutral reinforced

(c) under reinforced (d) bottom reinforced

83. In limit state of collapse for direct compression, the maximum axial compressive strain in concrete is **[SSC-2014]**

(a) 0.002 (b) 0.003

(c) 0.0035 (d) 0.004

84. A reduction factor C_r to load carrying capacity for a long column of effective length L_e and width b is applied as obtained from following expression: **[SSC-2014]**

(a) $1-\frac{L_e}{24b}$ (b) $1.25-\frac{L_e}{36b}$

(c) $1.25-\frac{L_e}{48b}$ (d) $1.5-\frac{L_e}{60b}$

85. A T-beam behaves are rectangular beam of a width equal to its flange if its neutral axis **[SSC-2014]**

(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

86. If τ_v is the nominal shear stress, τ_c is design shear strength of concrete and $\tau_{c,max}$ is the maximum design shear strength of concrete which of the following statements is correct? **[SSC-2014]**

(a) If $t_v > t_{c,\,max}$, section is to be designed for shear.

(b) If $t_v > t_{c,\,max}$, minimum shear reinforcement is to be provided

(c) If $t_v > t_c$, minimum shear reinforcement is to be provided

(d) If $t_v > t_c$, minimum shear reinforcement is to be provided

87. The minimum clear cover (in mm) for the main reinforcement in column, according to IS : 456-2000 is **[SSC-2014]**

(a) 20 (b) 25

(c) 40 (d) 50

88. The diameter of longitudinal bars of a column should never be less than **[SSC-2014]**

(a) 6 mm (b) 8 mm

(c) 10 mm (d) 12 mm

89. In an RCC section of effective depth vertical stirrups are provided to resist shear, their maximum spacing measured along the axis of the member as per IS : 456-2000 should not exceed **[SSC-2014]**

(a) 0.25 d (b) 0.50 d
(c) 0.75 d (d) 1.00 d

90. For a continuous slab of 3 m × 3.5 m size, the minimum overall depth of slab satisfy vertical deflection limit is **[SSC-2014]**

(a) 5 cm (b) 7.5 cm
(c) 10 cm (d) 15 cm

91. As per IS : 800, the factor of safety adopted with respect to the yeild stress of steels is **[SSC-2014]**

(a) 1.45 (b) 1.5
(c) 1.67 (d) 2.0

92. A tie is a **[SSC-2014]**

(a) tension member (b) compression member
(c) flexural member (d) torsion member

93. The slenderness ratio of lacing bars should not exceed **[SSC-2014]**

(a) 120 (b) 145
(c) 180 (d) 100

94. Bearing stiffeners are designed as **[SSC-2014]**

(a) beams (b) beams-ties
(c) ties (d) column

95. The maximum allowable slenderness ratio for members carrying compressive load due to during wind and seismic force only is **[SSC-2014]**

(a) 180 (b) 250
(c) 350 (d) 400

96. The throat in a fillet weld is **[SSC-2014]**

(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 the hypotenuse

97. The size of a rivet is identified by **[SSC-2014]**

(a) diameter of shank (b) diameter of head
(c) length of shank (d) shape of head

98. Horizontal stiffeners are needed in plate girders if the thickness of web is less than **[SSC-2014]**

(a) 6 mm (b) Depth/200
(c) Span/500 (d) Flange thickness

99. Permissible stress may also be known as **[SSC-2014]**

(a) ultimate stress (b) working stress
(c) limit stress (d) yield stress

100. The maximum permissible stress for power driven field rivet in bearing on rivet is **[SSC-2014]**

(a) 100 N/mm^2 (b) 250 N/mm^2
(c) 270 N/mm^2 (d) 300 N/mm^2

Answer Key									
1	A	2	D	3	B	4	C	5	B
6	C	7	D	8	D	9	C	10	D
11	C	12	A	13	A	14	D	15	C
16	A	17	C	18	C	19	D	20	A
21	A	22	A	23	D	24	A	25	A
26	B	27	A	28	A	29	C	30	A
31	A	32	C	33	A	34	A	35	B
36	C	37	C	38	C	39	B	40	B
41	A	42	B	43	A	44	C	45	C
46	A	47	C	48	B	49	B	50	C
51	A	52	D	53	A	54	B	55	D
56	A	57	C	58	A	59	C	60	A
61	A	62	D	63	A	64	D	65	B
66	C	67	B	68	B	69	B	70	A
71	C	72	C	73	B	74	A	75	B
76	C	77	C	78	A	79	B	80	B
81	C	82	C	83	A	84	C	85	A
86	C	87	C	88	D	89	C	90	B
91	C	92	A	93	B	94	D	95	B
96	D	97	A	98	B	99	B	100	C