

Booklet Sr. No. \_\_\_\_\_



Question Booklet  
Set

Candidate's Name \_\_\_\_\_

Father's Name \_\_\_\_\_

Date of Birth :     
D D M M Y Y Y Y

**D**

OMR Response Sheet No. \_\_\_\_\_ Roll No. \_\_\_\_\_

Candidate's Signature : \_\_\_\_\_  
(Please sign in the box)

Total Questions : 120  
Time Allowed : 2 Hours

**INSTRUCTIONS**

1. The candidate shall NOT open this booklet till the time he/she is told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black ball point pen to fill the relevant columns on this page as well as in the OMR sheet. Use of ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, by marking correct responses on the OMR sheet.
5. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
6. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
7. The question paper booklet has 16 pages.
8. The paper consists of total 300 marks. Each question shall carry 2.5 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (0.5 marks for each question) for questions wrongly answered by the candidate.
10. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before they start answering the questions and check that two carbon copies attached to the OMR sheet are intact.

## SECTION A

1. In the concrete pump, the part of the pump that receives and holds concrete before it is sucked into the pumping cylinder is known as
  - (a) intake hopper.
  - (b) outer hopper.
  - (c) inlet piper.
  - (d) None of the above
2. Considering the method of structural analysis, recognise the wrong statement from the following options :
  - (a) The Moment Distribution Method is a force method of analysis, not a displacement method.
  - (b) The Substitute Frame Method is not applicable to frames subject to significant sideway.
  - (c) Influence lines for stress resultants in beams can be drawn using Muller Breslau's Principle.
  - (d) None of the above statements
3. The stiffness coefficient  $k_{ij}$  designates
  - (a) deformation at  $i$  due to a unit force at  $j$ .
  - (b) force at  $j$  due to a unit deformation at  $i$ .
  - (c) force at  $i$  due to a unit deformation at  $j$ .
  - (d) deformation at  $j$  due to a unit force at  $i$ .
4. A symmetrical two-hinged parabolic arch when subjected to a uniformly distributed load on the entire horizontal span, is subjected to
  - (a) normal thrust and bending moment.
  - (b) normal thrust, radial shear and bending moment.
  - (c) radial shear alone.
  - (d) normal thrust alone.
5. When suspended impurities of water are separated by action of nature forces alone, the process is known as
  - (a) plain sedimentation.
  - (b) precipitated impurities.
  - (c) organic sedimentation.
  - (d) coagulation.
6. If natural alkalinity in water is insufficient to react with alum, \_\_\_\_\_ is added to the water.
  - (a) aluminium
  - (b) soda ash
  - (c) ferrous
  - (d) lime
7. When iron and manganese occur in water without organic matter, they could be removed by aeration, followed by
  - (a) filtration with lime.
  - (b) only sedimentation.
  - (c) coagulation, sedimentation and filtration.
  - (d) None of the above
8. Changes in the cost of price or specific goods or services in a given economy over period is defined as
  - (a) Tender cost.
  - (b) Contract.
  - (c) Prime cost.
  - (d) Cost escalation.
9. While submitting a tender, the bidder has to deposit with the department an amount equal to about 2.5% of the estimated cost of the work, which is called
  - (a) Earnest money.
  - (b) Penalty cost.
  - (c) Arbitration.
  - (d) Security deposit.

- 10.** If the irrigation efficiency is 80%, conveyance losses are 20%, the actual depth of watering is 16 cm, the depth of water required at the canal outlet is
- 15 cm
  - 25 cm
  - 30 cm
  - 45 cm
- 11.** According to Bligh's Creep theory, percolating water flows along
- the outline of the base of the foundation of the dam.
  - straight path under the foundation of the dam.
  - circular path under the foundation of the dam.
  - circular path top of the foundation.
- 12.** For a standing crop, the consumptive use of water is equal to the depth of water
- transpired and evaporated by the crop.
  - used by the crop in transpiration, evaporation and also quantity of water evaporated from adjacent soil.
  - transpired by the crop.
  - evaporated by the crop.
- 13.** For a steel construction where secondary effects are considered without earthquake or wind loads, the allowable stresses on the members or connections as quantified may be exceeded by
- 33%
  - 33.3%
  - 25%
  - None of the above
- 14.** Wind load analysis could be carried out using following Indian Standard Code of Practice :
- IS 875 – Part V
  - IS 875 – Part II
  - IS 875 – Part IV
  - IS 875 – III
- 15.** Minimum pitch of rivets should not be less than how many times of gross diameter of rivet ?
- 5 times
  - 3.5 times
  - 2.5 times
  - 3 times
- 16.** In the theory of plastic bending of beams, the ratio of plastic moment to yield moment is known as
- Rigidity modulus.
  - Modulus of resilience.
  - Plastic section modulus.
  - Shape factor.
- 17.** Maximum strain in extreme fibre of concrete and in tension reinforcement (Fe 415 and  $E_s = 200$  MPa) in balanced section at limit state of flexure are respectively
- 0.0035, 0.0041
  - 0.002, 0.0031
  - 0.0035, 0.0038
  - 0.002, 0.0018
- 18.** As per IS 456 : 2000, both vertical and horizontal spacing of reinforcement should not exceed \_\_\_\_\_ the thickness of the beam or 450 mm.
- 2.5 times
  - 3 times
  - 3.5 times
  - All of the above

19. Which of the following is **not** a basic component of a total station ?
- Electronic theodolite
  - Vernier scale
  - EDMI
  - Field computer
20. Which of the following grades of bitumen is harder ?
- 30/40
  - 60/70
  - 80/100
  - All are equal
21. Brick masonry bond in which each course has alternate header and stretcher is called
- English Bond.
  - Flemish Bond.
  - Diamond Bond.
  - Header Bond.
22. The structural cracks in reinforced concrete structures are generally repaired and restored using
- Shotcreting.
  - Injection Grouting.
  - Steel Plate Jacketing.
  - Rendering.
23. The approximate value of shrinkage strain in concrete is
- 0.003
  - 0.0003
  - 0.00003
  - 0.03
24. At room temperature, the dynamic and kinematic viscosity of water are
- both greater than that of air.
  - both lesser than that of air.
  - respectively greater than and lesser than that of air.
  - respectively lesser than and greater than that of air.
25. Navier-Stokes equation is useful in the analysis of
- viscous flow.
  - non-viscous flow.
  - turbulent flow.
  - non-viscous and turbulent flow.
26. Which one of the following is measured by a Rotameter ?
- Velocity of fluids
  - Discharge of fluids
  - Viscosity of fluids
  - Rotational speed of solid shafts
27. A land is said to be water-logged when
- the land is necessarily submerged under standing water.
  - there is a flowing water over the land.
  - the pH value of the soil becomes as high as 8.5.
  - the soil pores in the root zone get saturated with water.
28. Which among the following is **not** true about Asphaltic concrete lining of a channel ?
- It is fairly cheap.
  - It is flexible and readily conforms to subgrade.
  - It permits certain type of weed growth.
  - It decreases the rugosity coefficient of channel.
29. Deep tube wells in soft alluviums can be drilled by
- Rotary drilling rigs.
  - Percussion drilling rigs.
  - Down-the-hole-hammer (DTH) rigs.
  - None of the above

30. As per IS : 800, where a fillet weld is applied to the rounded toe of a rolled section, the specified size of the weld should generally not exceed 'X' times the thickness of the section at the toe, where 'X' is
- 1/4
  - 1/2
  - 3/4
  - None of the above
31. As per IS : 456, while designing RC elements for flexure, the maximum strain in bending in concrete at the outermost compression fibre is taken as
- 0.002
  - 0.0035
  - 0.005
  - None of the above
32. For a sand having internal friction of 30 degrees, the ratio of passive to active lateral earth pressure will be
- 1
  - 9
  - 3
  - 6
33. Heavier suspended material from sewage is removed in
- Screens.
  - Grit Chamber.
  - Primary Settling Tank.
  - Secondary Settling Tank.
34. If the moisture content of the sludge is reduced from 99% to 98%, the volume of sludge will decrease by
- 90%
  - 75%
  - 50%
  - 25%
35. In which air controlling device are the particulate matter incorporated into liquid droplets and thus removed from the gas stream ?
- Bag filter
  - Scrubbers
  - Electrostatic precipitator
  - Settling chamber
36. Total alkalinity of sample is 300 mg/lit as  $\text{CaCO}_3$ . The  $\text{Ca}^{++}$  is 220 mg/lit and  $\text{Mg}^{++}$  is 60 mg/lit. The total hardness is
- 800 mg/lit
  - 850 mg/lit
  - 520 mg/lit
  - 580 mg/lit
37. A test plate 30 cm  $\times$  30 cm resting on a sand deposit settles by 12 mm under a certain loading intensity. A footing 150 cm  $\times$  200 cm resting on the same sand deposit and loaded to the same load intensity settles by
- 33.47 mm
  - 3.33 mm
  - 27.81 mm
  - 2.78 mm
38. A saturated specimen of clay was immersed in mercury and displaced volume was 25 cc. The weight of the sample was 35 gm. After oven-drying for 48 hours, the weight reduced to 20 gm while volume came down to 12 cc. The shrinkage limit of soil is
- 10%
  - 7.5%
  - 12.5%
  - 15%

39. The ultimate load capacity of 10 m long concrete pile of 500 mm dia driven into a homogeneous clay layer of 50 kPa is 800 kN. If the cross-section of pile is reduced to 250 mm dia and the length of the pile is increased to 15 m, the ultimate load capacity will be

- (a) 655 kN
- (b) 625 kN
- (c) 500 kN
- (d) 555 kN

40. To provide safety against piping failure, with a factor of safety of 5, what should be the maximum permissible exit gradient for soil with specific gravity of 2.5 and void ratio of 0.5 ?

- (a) 0.20
- (b) 0.25
- (c) 0.10
- (d) 0.15

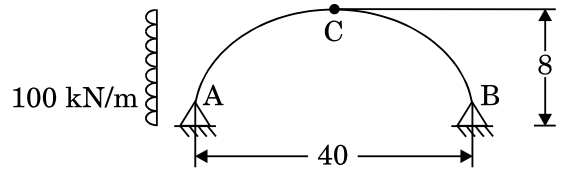
41. In a constant head permeameter test, the outflow is equal to 782 mL in a measured time of 31 seconds. The sand specimen has a diameter of 6.35 cm and a length of 2.54 cm. The total head loss for the permeameter is 2.0 m. The hydraulic conductivity is

- (a) 0.02 cm
- (b) 0.01 cm
- (c) 0.05 cm
- (d) 0.03 cm

42. A 5 m thick clay undergoes 90% consolidation four times faster under two-way drainage as compared to one-way drainage. In an identical clay layer of 12 m thickness, two-way drainage will be faster as compared to one-way drainage by

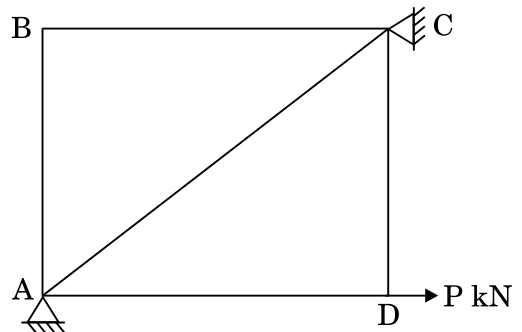
- (a) 8 times
- (b) 4 times
- (c) 2 times
- (d) 6 times

43. A circular three-hinged arch of span 40 m and a rise of 8 m is subjected to horizontal load of 100 kN per vertical meter on the left side. The horizontal thrust at the right spring (B) will be



- (a) 200 kN
- (b) 400 kN
- (c) 600 kN
- (d) 800 kN

44. The number of zero force members for the following truss is



- (a) 1
- (b) 2
- (c) 3
- (d) 4

45. The correct relation between Theoretical Oxygen Demand (TOD), Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) is given by

- (a)  $TOD > BOD > COD$
- (b)  $BOD > COD > TOD$
- (c)  $TOD > COD > BOD$
- (d)  $COD > BOD > TOD$

46. Gravitational settling chambers are only used to collect the particles above
- 50 micron
  - 40 micron
  - 35 micron
  - 45 micron
47. 20 MLD of water is flowing through a 2.5 km long pipe of diameter 45 cm. The chlorine at the rate of 30 kg/d is applied at the entry of this pipe so that disinfected water is obtained at the exit. There is a proposal to increase the flow through this pipe to 40 MLD from 20 MLD. Assume the dilution coefficient as 1. The minimum amount of chlorine (in kg per day) to be applied to achieve the same degree of disinfection for the enhanced flow is
- 120
  - 60.5
  - 44
  - 38
48. In the limit state design of serviceability, the deflection after erection of partitions and applications of finishes is restricted to
- Span/150
  - Span/250
  - Span/325
  - Span/350
49. If the radius of a simple curve is R, then the length of the chord for calculating the offsets by the 'method of chords produced' should not exceed
- $R/25$
  - $R/20$
  - $R/10$
  - $R/5$
50. IRC has specified the maximum stripping value of bitumen not to exceed
- 2%
  - 3%
  - 4%
  - 5%
51. The maximum longitudinal pitch allowed in bolted compression member as per IS 800 – 2007 is
- 16 times diameter of bolt.
  - 12 times thickness of plate.
  - 12 times diameter of bolt.
  - 16 times thickness of plate.
52. The maximum size of filled weld applied to the square edge of plate of thickness greater than 6 mm is
- 2.0 mm less than the thickness of plate.
  - 1.0 mm less than the thickness of plate.
  - 1.5 mm less than the thickness of plate.
  - half the thickness of plate.
53. In a plate girder, the web plate is connected to the flange plates by fillet welding. The size of the fillet welds is designed to safely resist the
- bending stresses in the flange.
  - vertical shear force at the section.
  - horizontal shear force between the flanges and the web plate.
  - forces causing buckling in the web.

54. When the bolts are subjected to reversal of stresses, the most suitable type of bolt is
- black bolt.
  - ordinary unfinished bolt.
  - turned and fitted bolt.
  - high strength bolt.
55. Tie bar in cement concrete pavements are at
- expansion joints.
  - contraction joints.
  - wrapping joints.
  - longitudinal joints.
56. Bearings are provided in bridges to
- allow translation and rotation in bridges.
  - transfer forces from superstructure to substructure.
  - isolate superstructure and substructure.
  - All of the above
57. An aggregate is said to be flaky if its least dimension is less than
- $1/5^{\text{th}}$  of mean dimension.
  - $2/5^{\text{th}}$  of mean dimension.
  - $3/5^{\text{th}}$  of mean dimension.
  - $4/5^{\text{th}}$  of mean dimension.
58. Waterborne sulphates react with hydration products of the tricalcium aluminate ( $C_3A$ ) phase of Portland cement, and with calcium hydroxide ( $Ca(OH)_2$ ) to form an expansive crystalline product called
- Ettringite.
  - Tricalcium aluminate.
  - Dicalcium silicate.
  - Tricalcium silicate.
59. The approach in which the individual fluid particles are considered and their properties are studied as a function of time is called
- Eulerian approach.
  - Lagrangian approach.
  - Bernoulli's approach.
  - Reynolds' approach.
60. A ship enters from sea water to fresh water. Then its vessel draft
- increases.
  - decreases.
  - remains constant.
  - becomes zero.
61. For measuring flow by a Venturimeter, it should be installed in
- vertical pipeline.
  - horizontal pipeline.
  - inclined pipeline.
  - pipeline in any direction.
62. Based on the assumption of 'continuum' for fluids, the description of any fluid property (such as density, pressure, velocity, acceleration, etc.) expressed as a function of spatial coordinates is called
- Spatial representation
  - Field representation
  - Property representation
  - Flow representation
63. A rod of length  $L$  and diameter  $D$  is subjected to a tensile load  $P$ . Which of the following is sufficient to calculate the resulting change in diameter ?
- Young's modulus
  - Shear modulus
  - Poisson's ratio
  - Young's modulus and Shear modulus



64. Two beams of same material have equal cross-sectional area. If one beam has square cross-section and the other has circular cross-section,
- both the beams will be equally strong.
  - circular section will be stronger.
  - square section will be stronger.
  - strength depends on loading condition.
65. A circular shaft was subjected to torsion initially and then subjected to a bending moment. If the maximum bending stress and maximum torsional shear stress had same value, ratio of torque applied to bending moment is
- 1/2
  - 3/4
  - 3/2
  - 2
66. The axial load carrying capacity of a long column of given material and cross-sectional area  $A$  and length  $L$  is governed by
- strength of its material only.
  - its flexural rigidity only.
  - its slenderness ratio only.
  - its flexural rigidity and slenderness ratio.
67. In case of two-bid system, if bidder fails to qualify for technical bid,
- the work will be awarded to him.
  - he may be asked to correct his bid.
  - his financial bid need not be opened.
  - he may be asked to resubmit his technical bid.
68. Size of power shovel is represented by the size of
- Hoist line.
  - Dipper.
  - Boom.
  - Cab.
69. The plinth area of building does *not* include
- lift and walls.
  - internal shaft for sanitary installations.
  - area of cantilevered porch.
  - area of walls at floor level.
70. As per IS : 456, the longitudinal reinforcement in a column should not be less than
- 0.5% of cross-sectional area.
  - 0.6% of cross-sectional area.
  - 0.7% of cross-sectional area.
  - 0.8% of cross-sectional area.
71. Diaphragms are adopted in concrete box girder bridges to
- transfer load from bridge decks to bearing.
  - contribute to the provision of torsional restraint.
  - increase axial capacity of deck.
  - increase flexural capacity of bridge.
72. In a system, two connected rigid bars AC and BC are of identical length,  $L$  with pin supports at A and B. The bars are interconnected at C by a frictionless hinge. The rotation of the hinge is restrained by a rotational spring of stiffness,  $k$ . The system initially assumes a straight line configuration, ACB. Assuming both the bars as weightless, the rotation at supports, A and B, due to a transverse load,  $P$  applied at C is
- $PL/4k$
  - $PL/2k$
  - $P/4k$
  - $Pk/4L$

- 73.** A beam PQRS is 18 m long and is simply supported at points Q and R 10 m apart. Overhangs PQ and RS are 3 m and 5 m respectively. A train of two point loads of 150 kN and 100 kN, 5 m apart, crosses this beam from left to right with 100 kN load leading. The maximum sagging moment under the 150 kN anywhere is
- 500 kN-m
  - 450 kN-m
  - 400 kN-m
  - 375 kN-m
- 74.** An isochrone is a line on the basin map
- joining rain gauge stations having equal rainfall duration.
  - joining points having equal rainfall depth in a given time interval.
  - joining points having equal time of travel of surface runoff to the catchment outlet.
  - joining points which are at equal distance from the catchment outlet.
- 75.** Vicat's apparatus is used for
- fineness test.
  - consistency test.
  - setting time test.
  - soundness test.
- 76.** A sprinkler irrigation system is suitable when the
- land gradient is steep and the soil is easily erodible.
  - soil is having low permeability.
  - water table is low.
  - crops to be grown have deep roots.
- 77.** Assertion (A) :  
If the soil moisture is only slightly more than the wilting coefficient, the plant must expend extra energy to obtain the water and hence the plant will not grow healthy.  
Reason (R) :  
Excessive water supply retards plant growth.
- Assertion (A) is true and Reason (R) is false.
  - Assertion (A) is false and Reason (R) is true.
  - Assertion (A) and Reason (R) are true. Reason (R) is the correct explanation of Assertion (A).
  - Assertion (A) and Reason (R) are true. Reason (R) is not the correct explanation of Assertion (A).
- 78.** On a diagonal scale, it is possible to read up to
- two dimensions.
  - one dimension.
  - four dimensions.
  - three dimensions.
- 79.** A vehicle or train enters a curve, it experiences a centrifugal force which tends to cause derailment, overturning, or side slipping of vehicles; the raising of the outer edge of a curve over the inner one is known as
- Uniform force.
  - Lower elevation.
  - Superelevation.
  - Constant force.
- 80.** The great disadvantage of tacheometry is that it needs to elaborate calculations to find out the
- vertical elevations of points.
  - elevation only.
  - horizontal distances and elevations of points.
  - None of the above

81. As per Indian Standard Code of Practice for pre-stressed concrete, the minimum grades of concrete to be used for post-tensioned and pre-tensioned structural elements are respectively
- M15 and M20
  - M30 and M40
  - M20 for both
  - M40 and M30
82. Quarrying using channelling machine is employed for quarrying in
- Sand stones.
  - Quartzite.
  - Soft rock.
  - Hard rock.
83. Sections of more uniform moisture content are obtained by
- Tangential sawing.
  - Ordinary sawing.
  - Radial sawing.
  - Quarter sawing.
84. Which one the following is *not* a workability improvement agent ?
- Plasticizer
  - Silica fume
  - Superplasticizer
  - Air-entraining agents
85. Falling drops of water become spheres due to
- viscosity of water.
  - capillarity of water.
  - surface tension of water.
  - compressibility of water.
86. The loss of head due to sudden enlargement in a pipe is equal to
- $\frac{(v_1 - v_2)^2}{2g}$
  - $\frac{v_1^2 - v_2^2}{2g}$
  - $\frac{v_1^2 + v_2^2}{2g}$
  - $\frac{v_1 - v_2}{2g}$
87. For water flow in coarse alluvium, the minimum size of the particle at which the critical shear stress is independent of the viscosity of water is about
- 4 mm
  - 6 mm
  - 5.5 mm
  - 3 mm
88. The pressure measured with the help of a piezometer tube is
- vacuum pressure.
  - atmospheric pressure.
  - gauge pressure.
  - absolute pressure.
89. A hydrograph is a plot of
- rainfall intensity vs. time.
  - discharge vs. time.
  - cumulative rainfall vs. time.
  - rainfall depth vs. duration.
90. The flow duration curve is a plot of
- the base flow against the percentage of times the flow is exceeded.
  - the stream discharge against the percentage of times the flow is equalled or exceeded.
  - discharge against time in chronological order.
  - accumulated flow against time.

- 91.** An area classified as a drought prone area in the probability  $P$  of occurrence of a drought is
- $0.1 \leq P < 0.20$
  - $0.0 < P < 0.20$
  - $0.02 < P < 0.20$
  - $0.2 \leq P \leq 0.40$
- 92.** For a catchment with an area of  $360 \text{ km}^2$ , the equilibrium discharge of the S-curve obtained by summation of 4-hour unit hydrograph is
- $110 \text{ m}^3/\text{sec}$
  - $250 \text{ m}^3/\text{sec}$
  - $280 \text{ m}^3/\text{sec}$
  - $390 \text{ m}^3/\text{sec}$
- 93.** In a cantilever beam subjected to general loading, the maximum bending moment is at
- mid-span.
  - free end.
  - quarter-span.
  - fixed end.
- 94.** The ratio of height of column to the minimum radius of gyration of the cross-sectional area of the column is defined as the
- Buckling ratio.
  - Slenderness ratio.
  - Compression ratio.
  - Crippling ratio.
- 95.** For a material when tested within the elastic limit, the value of Poisson's ratio is  $0.35$ . When the same material is tested in plastic stage, its Poisson's ratio in the plastic stage will be
- $0.42$
  - $0.37$
  - $0.40$
  - $0.53$
- 96.** A car is travelling on a two-lane rural road at  $72 \text{ kmph}$ . The road is  $5\%$  downhill. A deer appears in front of the car and starts to cross the road. What is most nearly the distance the car needs in order to stop in time to avoid hitting the deer ?
- $45 \text{ m}$
  - $180 \text{ m}$
  - $128 \text{ m}$
  - $51 \text{ m}$
- 97.** The expansion joints in rigid pavement (concrete roads) are filled with
- cork bound with bitumen.
  - impregnated fiber boards.
  - imperious elastic materials.
  - All of the above
- 98.** A length of the transition curve is decided according to the
- time rate.
  - rate of change of radial acceleration.
  - rate of superelevation.
  - All of the above
- 99.** For the construction of sub-base of the WBM road, the size of the boulders, broken stones or over-burnt bricks should be in the range of
- $150 \text{ mm}$  to  $180 \text{ mm}$ .
  - $220 \text{ mm}$  to  $250 \text{ mm}$ .
  - $100 \text{ mm}$  to  $200 \text{ mm}$ .
  - $90 \text{ mm}$  to  $100 \text{ mm}$ .
- 100.** Ready-mix concrete is completely mixed in a truck mixer, with \_\_\_\_\_ at a speed sufficient to mix the concrete completely.
- $50$  to  $80$  revolutions
  - $20$  to  $50$  revolutions
  - $80$  to  $170$  revolutions
  - $70$  to  $100$  revolutions

## SECTION B

**101.** Who is the current Chairman of the Prime Minister's Economic Advisory Council ?

- (a) Nilesh Shah
- (b) Neelkanth Mishra
- (c) Bibek Debroy
- (d) Ratan Watal

**102.** Which among the following are the IUCN biodiversity hotspots in India ?

- 1. The Himalayas
- 2. The Western Ghats
- 3. The Indo-Burma region
- 4. The Sundaland (near Nicobar group of islands)

Choose the correct answer using the following codes given below :

- (a) 1, 2 and 4
- (b) 2 and 3
- (c) 2, 3 and 4
- (d) All of the above

**103.** Which crop has Nitrogen fixing bacteria through combination with cells in their roots ?

- (a) Pulses
- (b) Wheat
- (c) Rice
- (d) Banana

**104.** Who among the following wrote 'Why I Am an Atheist' ?

- (a) Udham Singh
- (b) Bhagat Singh
- (c) Dadabhai Naoroji
- (d) Mahatma Gandhi

**105.** The sun is directly overhead at noon on 22<sup>nd</sup> December at the

- (a) Equator
- (b) Tropic of Cancer
- (c) Tropic of Capricorn
- (d) Antarctic Circle

**Directions (Question no. 106) :** In the following question, there is a certain relationship between two given words on one side of :: and one word is given on the other side of :: while another word is to be found from the given alternatives, having the same relation with this word as the words of the given pair bear. Choose the correct alternative.

**106.** Lion : Den :: Rabbit : ?

- (a) Trench
- (b) Hole
- (c) Pit
- (d) Burrow

**107.** X introduces Y saying, "He is the husband of the granddaughter of the father of my father." How is Y related to X ?

- (a) Brother
- (b) Son
- (c) Brother-in-law
- (d) Nephew

**Directions (Questions no. 108 – 110) :** Read the following information and answer the questions given below it :

Six students A, B, C, D, E and F are sitting in the field. A and B are from Nehru House while the rest belong to Gandhi House. D and F are tall while the others are short. A, C and D are wearing glasses while the others are not.

**108.** Which two students, who are not wearing glasses, are short ?

- (a) A and F
- (b) C and E
- (c) B and E
- (d) E and F

**109.** Which short student of Gandhi House is not wearing glasses ?

- (a) F
- (b) E
- (c) B
- (d) A

- 110.** Which tall student of Gandhi House is not wearing glasses ?
- (a) B
  - (b) C
  - (c) E
  - (d) F

**Directions (Questions no. 111 – 115) :**  
*Read the following information carefully and answer the questions given below it :*

Sumeet, Philips, Wasim, Bishan and Chetan are five players of the College Cricket Team and their home towns are Surat, Pune, Warangal, Bangalore and Chandigarh, but not in that order. The five specialist slots of spinner, pace bowler, wicket-keeper, batsman and captain are held by them, again not in the order of their names stated above.

- I. Their names, home towns and specialities do not start with the same letter.
  - II. Neither Philips nor Wasim is the captain and they do not belong to either Surat or Bangalore.
  - III. Sumeet is neither a wicket-keeper nor a batsman.
  - IV. Pune is not Bishan's home town.
  - V. The player who hails from Bangalore is a wicket-keeper.
  - VI. The captain's home town is Pune while the batsman does not hail from Warangal.
- 111.** The spinner's home town is
- (a) Chandigarh
  - (b) Bangalore
  - (c) Warangal
  - (d) Pune
- 112.** Chandigarh is the home town of
- (a) Sumeet
  - (b) Bishan
  - (c) Wasim
  - (d) Philips
- 113.** Who is the pace bowler ?
- (a) Chetan
  - (b) Wasim
  - (c) Sumeet
  - (d) Bishan

- 114.** Who is the spinner ?
- (a) Philips
  - (b) Chetan
  - (c) Bishan
  - (d) Wasim

- 115.** Chetan's home town is
- (a) Pune
  - (b) Surat
  - (c) Warangal
  - (d) Bangalore

- 116.** Which of the following is a constituent organization of the World Bank ?
- (a) Goldman Sachs
  - (b) New Development Bank
  - (c) International Development Association ( IDA)
  - (d) Bank of America

- 117.** Which of the following countries have dispute over Katchatheevu island ?
- (a) Philippines and China
  - (b) Vietnam and China
  - (c) India and Sri Lanka
  - (d) Japan and China

- 118.** International Court of Justice has its permanent seat at
- (a) The Hague
  - (b) Geneva
  - (c) Paris
  - (d) New York

- 119.** Free and fair elections to the Panchayats are to be conducted by which of the following institutions ?
- (a) Election Commission of India
  - (b) Chief Minister of the State
  - (c) Panchayat Election Commission
  - (d) State Election Commission

- 120.** Who sets up the Finance Commission in India ?
- (a) The Prime Minister
  - (b) The Parliament
  - (c) The Finance Minister
  - (d) The President

**SPACE FOR ROUGH WORK**

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