

ASSISTANT ENGINEER (CIVIL)

QUESTIONS & ANSWERS

1. Percentage of pozzolanic material containing clay upto 80% used for the manufacture of pozzolana cement, is

- A) 0.3
- B) 0.4
- C) 0.5
- D) 0.6

Ans: A

2. A compacted soil sample using 10% moisture content has a weight of 200 g and mass unit weight of 2.0 g/cm³. If the specific gravity of soil particles and water are 2.7 and 1.0, the degree of saturation of the soil is

- A) 0.556
- B) 0.1111
- C) 0.5666
- D) None of the other three options

Ans: A

3. Lacey's equation for calculating flood discharge in rivers, is

- A) $V = 10.8 R^{1/2} S^{1/2}$
- B) $V = 10.8 R^{2/3} S^{1/2}$
- C) $V = 10.8 R^{2/3} S^{1/3}$
- D) $V = 10.8 R^{1/3} S^{2/3}$

Ans: C

4. Pick up the correct statement from the following:

- A) In a loaded beam, the moment at which the first yield occurs is called yield moment
- B) In a loaded beam, the moment at which the entire section of the beam becomes fully plastic, is called plastic moment
- C) In a fully plastic stage of the beam, the neutral axis divides the section in two sections of equal area
- D) In a loaded beam, the moment at which the first yield occurs is called yield moment and In a loaded beam, the moment at which the entire section of the beam becomes fully plastic, is called plastic moment and In a fully plastic stage of the beam, the neutral axis divides the section in two sections of equal area

Ans: D

5. The minimum thickness of a flat slab is taken

- A) 13 cm
- B) L/32 for end panels without drops
- C) L/36 for end panels without drops
- D) 13 cm and L/32 for end panels without drops and L/36 for end panels without drops

Ans: D

6. A car driver, driving in a fog, passes a pedestrian who was walking at the rate of 2 km/h in the same direction. The pedestrian could see the car for 6 minutes and it was visible to him up to a distance of 0.6 km. What was the speed of the car?

- A) 30 km/h
- B) 15 km/h
- C) 20 km/h
- D) 8 km/h

Ans: D

7. Which of the Famous Temple is located at Belur ?

- A) Chenna Keshava Temple
- B) Hanuman Temple
- C) Ganesh temple
- D) Vishnu Temple

Ans: A

8. M10 grade of concrete approximates

- A) 1 : 3 : 6 mix
- B) 1 : 1 : 2 mix
- C) 1 : 2 : 4 mix
- D) 1 : 1.5 : 3 mix

Ans: A

9. Rivets subjected to shear and an externally applied tensile force, should be so proportioned that

$$\left(\frac{f_s}{p_s}\right)^2 + \left(\frac{f_t}{p_t}\right)^2 < 1$$

A)

$$\left(\frac{f_s}{p_s}\right)^2 + \left(\frac{f_t}{p_t}\right)^2 = 1$$

B)

$$\left(\frac{f_s}{p_s}\right)^2 + \left(\frac{f_t}{p_t}\right)^2 > 1$$

C)

$$\left(\frac{f_s}{p_s}\right)^2 + \left(\frac{f_t}{p_t}\right)^2 \leq 1$$

D)

Ans: D

10. Presence of ifluoride in water greater than permissible level of 1.5 mg/l causes

- A) cardiovascular disease
- B) Methemoglobinemia
- C) Hepatitis
- D) dental fluorosis

Ans: D

11. A district road with a bituminous pavement has a horizontal curve of 1000 m for a design speed of 75 km ph. The super-elevation is

- A) 1 in 40
- B) 1 in 50
- C) 1 in 60
- D) 1 in 70

Ans: A

12. If the dimensions of a rectangular section of a short column are 15cm X 20cm, its unsupported length should be restricted to

- A) 9.0 m
- B) 10.0 m
- C) 11.0 m
- D) 12.0 m

Ans: A

13. The difference between people with access to computers and the Internet and those without this access is known as the:

- A) Digital divide
- B) Internet divide
- C) Web divide
- D) Cyberway divide

Ans: A

14. For deformed reinforcing bars, the permissible design bond stress may be increased by

- A) 20%
- B) 30%
- C) 40%
- D) 60%

Ans: D

15. For ensuring quality of concrete, use

- A) single sized aggregates
- B) two sized aggregate
- C) graded aggregates
- D) coarse aggregates

Ans: **C (revised)**

16. The maximum pitch of rivets for compression and tension members should not exceed

- A) 32 t
- B) 200 mm
- C) 40 t
- D) both 32t and 200 mm

Ans: D

17. The reaction time for calculation of stopping distance may be assumed as

- A) 5 secs
- B) 0.5 secs
- C) 2.5 secs
- D) 10secs

Ans: **C (revised)**

18. Simpson's rule for calculating areas states that the area enclosed by a curvilinear figure divided into an even number of strips of equal width, is equal to

- A) half the width of a strip, multiplied by the sum of two extreme offsets, twice the sum of remaining odd offsets, and thrice the sum of the even offsets
- B) one third the width of a strip, multiplied by the sum of two extreme offsets, twice the sum of remaining odd offsets and four times the sum of the even offsets
- C) one third the width of a strip, multiplied by the sum of two extreme offsets, four times the sum of the remaining odd offsets, and twice the sum of the even offsets
- D) one sixth the width of a strip, multiplied by the sum of the two extreme offsets, twice the sum of remaining odd offsets and four times the sum of the even offsets

Ans: B

19. If a tachometer is fitted with an anal-latic lens

- A) additive constant is 100, multiplying constant is zero
- B) multiplying constant is 100, additive constant is zero
- C) both multiplying and additive constants are 100
- D) both multiplying and additive constants are 50

Ans: B

20. The maximum spacing of shear reinforcement should not exceed $0.75 d$ subject to a minimum of

- A) 300 mm
- B) 350 mm
- C) 400 mm
- D) 450 mm

Ans: **A (revised)**

21. If R is the radius of a main curve and L is the length of the transition curve, the shift of the curve, is

- A) $L/24 R$
- B) $L^2/24 R$
- C) $L^3/24 R$
- D) $L^4/24 R$

Ans: B

22. The ratio of the rate of change of discharge of an outlet to the rate of change in level of water surface in a distributary at its normal depth, is known as

- A) Efficiency
- B) Sensitivity
- C) flexibility
- D) modular limit

Ans: B

23. A star in northern sphere is said to transit

- A) when its altitude is maximum
- B) when it is in south
- C) when its azimuth is 180°
- D) when its altitude is maximum and when it is in south and when its azimuth is 180°

Ans: D

24. The theory of economic drain of India during British imperialism was propounded by

- A) Jawaharlal Nehru
- B) Dadabhai Naoroji
- C) R.C. Dutt
- D) M.K. Gandhi

Ans: **B (revised)**

25. The transplantation of rice requires 10 days and total depth of water required during transplantation is 48 cm. During transplantation there is an effective rainfall (useful for irrigation) of 8 cm. The duty of irrigation water in hectare/ cumecs is

- A) 110
- B) 108
- C) 114
- D) 116

Ans: D

26. The 5-day BOD of a wastewater sample is obtained as 190 mg/l (with $k = 0.01 \text{ h}^{-1}$). The ultimate oxygen demand (mg/l) of the sample will be
- A) 3800
 - B) 475
 - C) 271
 - D) 190
- Ans: C
27. How many zeroes will be there at the end of the expression $(2!)2! + (4!)4! + (8!)8! + (9!)9! + (10!)10! + (11!)11!$?
- A) $(8!)8! + (9!)9! + (10!)10! + (11!)11$
 - B) 10101
 - C) $4! + 6! + 8! + 2(10!)$
 - D) $(0!)0!$
- Ans: A
28. The minimum value of camber provided for thin bituminous surface hill roads, is
- A) 0.022
 - B) 0.025
 - C) 0.03
 - D) 0.035
- Ans: B
29. Find the last two digits of: $15 \times 37 \times 63 \times 51 \times 97 \times 17$.
- A) 35
 - B) 45
 - C) 55
 - D) 85
- Ans: A
30. There are 4 qualifying examinations to enter into Oxford University: RAT, BAT, SAT, and PAT. An Engineer cannot go to Oxford University through BAT or SAT. A CA on the other hand can go to the Oxford University through the RAT, BAT & PAT but not through SAT. Further there are 3 ways to become a CA (viz., Foundation, Inter & Final). Find the ratio of number of ways in which an Engineer can make it to Oxford University to the number of ways a CA can make it to Oxford University.
- A) 3:2
 - B) 2:3
 - C) 2:9
 - D) 9:2
- Ans: B
31. A tube well having a capacity of 4 m³/hour operates for 20 hours each day during the irrigation season. How much area can be commanded if the irrigation interval is 20 days and depth of irrigation is 7cm?
- A) $1.71 \times 10^4 \text{ m}^2$
 - B) $1.14 \times 10^4 \text{ m}^2$
 - C) $22.9 \times 10^4 \text{ m}^2$
 - D) $2.29 \times 10^4 \text{ m}^2$
- Ans: D

32. In a Sarda type fall, the rectangular crest, may be used for discharge upto

- A) 6 cumecs
- B) 10cumecs
- C) 14cumecs
- D) 20cumecs

Ans: C

33. The slenderness ratio of single angle discontinuous struts connected by a single rivet or bolt, shall not exceed

- A) 110
- B) 130
- C) 150
- D) 180

Ans: D

34. The product of the distances of plumb point and horizon point of a vertical photograph from its principal point, is

- A) f^2
- B) $2f^2$
- C) $3f^2$
- D) f

Ans: A

35. A water treatment plant of capacity, 1 m³/s has filter boxes of dimensions 6 m × 10 m. Loading rate to the filters is 120 m³/day/m². When two of the filters are out of service for back washing, the loading rate (in m³/day/m²) is

- A) 144
- B) 122
- C) 133
- D) 124

Ans: A

36. Utility in economics means _____

- A) Power to satisfy a want
- B) Usefulness
- C) Willingness of a person.
- D) Consumption

Ans: A

37. A can do a work in 10 days and B can do the same work in 20 days. They work together for 5 days and then A goes away. In how many more days will B finish the work?

- A) 5 days
- B) 6.5 days
- C) 10 days
- D) 8 days

Ans: A

38. In a single throw of two dice, what is the probability that the sum is 9?

- A) 0.875
- B) 1/9
- C) 1/7
- D) 1/8

Ans: B

39. If L is total length of a canal in kilometers, P is total perimeter of its lining in meters and C is the cost of lining per square meter, the additional expenditure involved on lining, is

A) 1000 PLC

B) $\frac{PLC}{1000}$

C) $\frac{PL}{1000C}$

D) $\frac{PC}{100L}$

Ans: A

40. bar graph given below shows the sales of books (in thousand number) from six branches of a publishing company during two consecutive years 2000 and 2001. Sales of Books (in thousand numbers) from Six Branches - B1, B2, B3, B4, B5 and B6 of a publishing Company in 2000 and 2001. Total sales of branch B6 for both the years is what percent of the total sales of branches B3 for both the years?

A) 68.54%

B) 71.11%

C) 73.17%

D) 75.55%

Ans: B

41. The mixture of different ingredients of cement, is burnt at

A) 1000°C

B) 1200°C

C) 1400°C

D) 1600°C

Ans: C

42. A journey of 192 km takes 2 hours less by a fast train than by a slow train. If the average speed of the slow train be 16 kmph less than that of fast train, what is the average speed of the faster train?

A) 32 kmph

B) 16 kmph

C) 12 kmph

D) 48 kmph

Ans: D

43. Thickness of a pavement may be reduced considerably by

A) compaction of soil

B) stabilisation of soil

C) drainage of soil

D) combination of all the above

Ans: D

44. For batching 1:3:6 concrete mix by volume, the ingredients required per bag of 50 kg cement, are

A) 70 liters of sand and 120 liters of aggregates

B) 70 kg of sand and 140 liters of aggregates

C) 105 liters of sand and 140 liters of aggregates

D) 105 liters of sand and 210 liters of aggregates

Ans: D

45. The ratio of the effective lengths of two columns, one effectively held in position at one end and partially restrained at the other end, and the other effectively held in position at one end and free at the other end, is

- A) $\frac{1}{2}$
- B) $\frac{3}{4}$
- C) $\frac{2}{3}$
- D) $\frac{3}{2}$

Ans: **B (revised)**

46. How many rounds of matches does a knock-out tennis tournament have if it starts with 64 players and every player needs to win 1 match to move at the next round?

- A) 5
- B) 6
- C) 7
- D) 64

Ans: B

47. A water treatment plant is required to process 28800 m³/d of raw water (density = 1000 kg/m³, kinematic viscosity = 10⁻⁶ m²/s). The rapid mixing tank imparts tank a velocity gradient of 900s⁻¹ to blend 35 mg/l of alum with the flow for a detention time of 2 minutes. The power input (W) required for rapid mixing is

- A) 320
- B) 3200
- C) 3.2
- D) 32400

Ans: D

48. A reinforced concrete (RC) beam with width of 250 mm and effective depth of 400 mm is reinforced with Fe415 steel. As per the provisions of IS 456-2000, the minimum and maximum amount of tensile reinforcement (expressed in mm²) for the section are, respectively

- A) 205 and 4000
- B) 250 and 3000
- C) 432 and 4500
- D) 210 and 3100

Ans: A

49. Equation of time which is the difference between apparent solar time and mean solar time at any instant, vanishes during one year

- A) Once
- B) Thrice
- C) Twice
- D) Four times

Ans: D

50. According to the concept of Limit State Design as per IS 456: 2000, the probability of failure of a structure is

- A) 0.097
- B) 0.079
- C) 0.067
- D) 0.078

Ans: **A (revised)**

51. For calculating the allowable stress of long columns. The empirical

formula $\sigma_0 = \frac{\sigma_y}{n} \left(1 - a \frac{l}{r} \right)$, is known as

- A) Straight line formula
- B) Parabolic formula
- C) Perry's formula
- D) Rankine's formula

Ans: A

52. The moment of inertia of a floating body along its longitudinal axis and the volume of water displaced by it are I and V respectively. The height of the metacentre above centre of buoyancy of the body, is

- A) $\frac{I}{2V}$
- B) $\frac{2I}{V}$
- C) $\frac{I}{V}$
- D) $\frac{3I}{V}$

Ans: C

53. If A is the projected area of a vehicle in square meters, V is speed of the vehicles in kilometers per hour and C is a constant, then the wind resistance R to the moving vehicles, is given by

- A) $R = CAV$
- B) $R = CAV^2$
- C) $R = CAV^3$
- D) $\frac{AV^2}{C}$

Ans: B

54. Pick up the incorrect statement from the following:

- A) Tricalcium silicate (C3S) hydrates rapidly
- B) Tricalcium silicate (C3S) generates more heat of hydration
- C) Tricalcium silicate (C3S) develops early strength
- D) Tricalcium silicate (C3S) has more resistance to sulphate attack

Ans: D

55. A and B are two candidates seeking admission to the IIMs. The probability that A is selected is 0.5 and the probability that both A and B are selected is at most 0.3. Is it possible that the probability of B getting selected is 0.9.

- A) No
- B) Yes
- C) Insufficient data
- D) Can't say

Ans: A

56. The characteristic strength of concrete is defined as that compressive strength below which not more than

- A) 10% of results fall
- B) 5% of results fall
- C) 2% of results fall
- D) None of the other three options

Ans: B

57. Nishant and Madan appeared for an interview for two vacancies. The probability of Nishant's selection is $\frac{1}{3}$ and that of Madan's selection is $\frac{1}{5}$. Find the probability that only one of them will be selected.

- A) $\frac{2}{5}$
- B) $\frac{1}{5}$
- C) $\frac{5}{9}$
- D) $\frac{2}{3}$

Ans: A

58. The ruling minimum radius of horizontal curve of a national highway in plain terrain for ruling design speed of 100 km/hour with $e = 0.07$ and $f = 0.15$ is close to

- A) 320m
- B) 230m
- C) 340m
- D) 360m

Ans: D

59. The most suitable section of a lined canal, is

- A) triangular section with circular bottom for small canals
- B) trapezoidal section with rounded corners for large canals
- C) rectangular section with rounded corners for large canals
- D) both triangular section with circular bottom for small canals and trapezoidal section with rounded corners for large canals

Ans: D

60. Sujit covers a distance in 40 minutes if he drives at a speed of 60 kilo meter per hour on an average. Find the speed at which he must drive at to reduce the time of the journey by 25%?

- A) 60 km/h
- B) 70 km/h
- C) 75 km/h
- D) 80 km/h

Ans: B

61. $\log_2(9-2x) = 10 \log(3-x)$. Solve for x.

- A) 0
- B) 3
- C) 0 and 6
- D) 0 and 3

Ans: A

62. The diameter of the column head support a flat slab, is generally kept

- A) 0.25 times the span length
- B) 0.25 times the diameter of the column
- C) 4.0cm larger than the diameter of the column
- D) 5.0 cm larger than the diameter of the column

Ans: A

63. Permanent adjustments of a level are

- A) 2 in number
- B) 3 in number
- C) 4 in number
- D) 6 in number

Ans: A

64. The recent conflict due to Chinese occupation on a set of islands has created a conflict in _____ .

- A) Arabian Sea
- B) South China Sea
- C) Adriatic Sea
- D) Bay of Bengal

Ans: B

65. Red short iron cracks when bent due to the presence of

- A) sulphur
- B) carbon
- C) Phosphorus
- D) Silicon

Ans: A

66. A river 5 m deep consists of a sand bed with saturated unit weight of 20 kN/m³. $\gamma_w = 9.81$ kN/m³. The effective vertical stress at 5 m from the top of sand bed is

- A) 41 kN/m²
- B) 51 kN/m²
- C) 55kN/m²
- D) 53kN/m²

Ans: B

67. A _____ is approximately one billion bytes

- A) Bit
- B) Kilo byte
- C) Giga byte
- D) Mega byte

Ans: C

68. A stable channel is to be designed for a discharge of Q m³ /s with silt factor f as per Lacey's method. The mean flow velocity (m/s) in the channel is obtained by

- A) $(Qf^2/140)^{1/6}$
- B) $(Qf/140)^{1/3}$
- C) $(Q2f^2/140)^{1/6}$
- D) $0.48 (Q/f)^{1/3}$

Ans: A

69. A pitot tube is used to measure

- A) Pressure
- B) difference in pressure
- C) velocity of flow
- D) None of the other three options

Ans: C

70. The value of bearing capacity factor for cohesion, N_c , for piles as per Meyerhof, is taken as:

- A) 6.2
- B) 12
- C) 9
- D) 5.4

Ans: D

71. The ratio of the effective length to the least radius of gyration of a tie member of a roof truss, which gets subjected to reversal of stress shall not exceed

- A) 200
- B) 250
- C) 350
- D) 300

Ans: **C (revised)**

72. At the end of a business conference, ten people present shake hands with each other once. How many handshakes will be there all together?

- A) 20
- B) 45
- C) 55
- D) 90

Ans: B

73. Water distribution systems are sized to meet the

- A) maximum hourly demand
- B) average hourly demand
- C) maximum daily demand and fire demand
- D) average daily demand and fire demand

Ans: C

74. Permissible bending tensile stress in high yield strength deformed bars of grade 415 N/mm² in a beam is :

- A) 190 N/mm²
- B) 230 N/mm²
- C) 140 N/mm²
- D) None of the other three options

Ans: B

75. The total length of a valley formed by two gradients - 3% and + 2% curve between the two tangent points to provide a rate of change of centrifugal acceleration 0.6 m/sec², for a design speed 100 km ph, is

- A) 16m
- B) 42.3m
- C) 84.6m
- D) none of the other three options

Ans: C

76. The National Sports Day is celebrated on which day in India?

- A) 20 August
- B) 29 August
- C) 27 August
- D) 26 August

Ans: **B (revised)**

77. In using the data from a plate bearing test for determining the modulus of subgrade reaction, the value of settlement to be used is :

- A) 1.25 mm
- B) 2.50 mm
- C) 3.75 mm
- D) 1.75 mm

Ans: A

78. A hydraulic turbine has a discharge of 5 m³/s, when operating under a head of 20 m with a speed of 500 rpm. If it is to operate under a head of 15 m, for the same discharge, the rotational speed in rpm will approximately be

- A) 433
- B) 334
- C) 243
- D) 434

Ans: A

79. While house hunting in London, I came across a very good leasehold property. Discussing the lease the landlady told me: 'The property was originally on a 99 years lease and two-thirds of the time passed is equal to four-fifths of the time to come. Now work it out for yourself and see how many years are to go!

- A) 45
- B) 65
- C) 86
- D) 15

Ans: A

80. . If two points differing by 1° of latitude and of the same longitude is 110 km apart on the earth, then two astronomical positions on the moon is about

- A) 10 km
- B) 25 km
- C) 30 km
- D) 50 km

Ans: C

81. The declination and right ascension of the sun becomes 23° 27' S and 270° respectively on

- A) March 21
- B) June 21
- C) September 21
- D) December 22

Ans: D

82. The percentage error in the computed discharge over a triangular notch corresponding to an error of 1% in the measurement of the head over the notch, would be

- A) 2.5
- B) 2
- C) 2.2
- D) 1.5

Ans: A

83. A light house of 120 m height is just visible above the horizon from a ship. The correct distance (m) between the ship and the light house considering combined correction for curvature and refraction, is

- A) 39.098
- B) 42.226
- C) 39098
- D) 42226

Ans: D

84. The radius of a simple circular curve is 300 m and length of its specified chord is 30 m. The degree of the curve is

- A) 5.73°
- B) 5.37°
- C) 3.57°
- D) 3.75°

Ans: A

85. Which country is not a part of NATO coalition?

- A) France
- B) Germany
- C) UK
- D) Ukraine

Ans: D

86. A pipe of 0.7 m diameter has a length of 6 km and connects two reservoirs A and B. The water level in reservoir A is at an elevation 30 m above the water level in reservoir B. Halfway along the pipe line, there is a branch through which water can be supplied to a third reservoir C. The friction factor of the pipe is 0.024. The quantity of water discharged into reservoir C is 0.15 m³/s. Considering the acceleration due to gravity as 9.81 m/s² and neglecting minor losses, the discharge (in m³/s) into the reservoir B is

- A) 0.5421
- B) 0.5678
- C) 0.5643
- D) 0.5432

Ans: A

87. Modified moment of inertia of sections with a single web, is equal to moment of inertia of the section about Y-Y axis at the point of maximum bending moment and is multiplied by the ratio of

- A) area of compression flange at the minimum bending moment to the corresponding area at the point of maximum bending moment
- B) area of tension flange at the minimum bending moment of the corresponding area at the point of maximum bending moment
- C) total area of flanges at the maximum bending moment to the corresponding area at the point of maximum bending moment
- D) none of the other three options

Ans: C

88. Stress path equation for tri-axial test upon application of deviatoric stress is, $q = 10 \sqrt{3} \cdot 0.5p$. The respective values of cohesion, c (in kPa) and angle of internal friction, ϕ are:

- A) 20 and 30degree
- B) 30and20degree
- C) 20and20degree
- D) 30and30degree

Ans: C

89. A bull nose brick is not used for

- A) Rounding off sharp corners
- B) pillars
- C) decoration purpose
- D) Arches

Ans: D

90. The development length of each bar of three bars bundled together is increased by

- A) 0.1
- B) 0.2
- C) 0.33
- D) 0.5

Ans: C

91. The concrete may be accepted if the average equivalent cube strength of the cores, is at least 85% of the cube strength of the concrete grade at the specified age and no individual core possesses strength less than

- A) 0.35
- B) 0.75
- C) 0.5
- D) 0.25

Ans: B

92. An outlet irrigates an area of 20 ha. The discharge (l/s) required at this outlet to meet the evapotranspiration requirement of 20 mm occurring uniformly in 20 days neglecting other field losses is

- A) 2.52
- B) 2.31
- C) 2.01
- D) 1.52

Ans: B

93. According to IS: 800-1962, the coefficient of expansion of steel per degree centigrade per unit length, is taken as

- A) 0.000008
- B) 0.00001
- C) 0.000012
- D) 0.000014

Ans: C

94. The risk of segregation is more for

- A) wetter mix
- B) larger proportion of maximum size aggregate
- C) coarser grading
- D) wetter mix and larger proportion of maximum size aggregate and coarser grading

Ans: D

95. When a canal is carried over a natural drainage, the structure provided, is known as

- A) Siphon
- B) super passage
- C) aqueduct
- D) syphon-aqueduct

Ans: **C (revised)**

96. Babu is Rahim's neighbour and his house is 200 meters away in the north-west direction. Joseph is Rahim's neighbour and his house is located 200 meters away in the south-west direction. Gopal is Joseph's neighbour and he stays 200 meters away in the south-east direction. Roy is Gopal's neighbour and his house is located 200 meters away in the north east direction. Then where is the position of Roy's house in relation to Babu's?

- A) South-east
- B) South-west
- C) North-east
- D) North

Ans: A

97. For battened struts, the effective length is increased by

- A) 0.15
- B) 0.06
- C) 0.05
- D) 0.1

Ans: D

98. If the distance between the projectors is altered by a movement along X-axis of one projector

- A) the length of the air base is increased
- B) the scale of the model is altered
- C) y-parallax is not affected
- D) the length of the air base is increased and the scale of the model is altered and y-parallax is not affected

Ans: D

99. 3000 is distributed among A, B and C such that A gets $\frac{2}{3}$ rd of what B and C together get and C gets $\frac{1}{2}$ of what A and B together get. Find C's share.

- A) Rs. 750
- B) Rs. 1000
- C) Rs. 800
- D) Rs. 1200

Ans: **B (revised)**

100. In adverse circumstances, the reinforced concrete member immersed in sea water or subjected to sea spray, the maximum permissible cover for the reinforcing bars, should not exceed

- A) 40 mm
- B) 50 mm
- C) 60 mm
- D) 75mm

Ans: D