SCCL - MANAGEMENT TRAINEE (Civil)

SAMPLE / MODEL QUESTION PAPER

General Instructions to candidates:

1. All questions carry equal marks.
2. No negative marks.
3. Answer all questions.
4. Every question has 4 options and only ONE is CORRECT Answer.
5. Use OMR sheet for marking the correct answer by bubbling with BLUE or BLACK ballpoint pen only.

1. A certain type of mixture is prepared by mixing brand A at Rs.9 a kg. with brand B at Rs.4 a kg. If the mixture is worth Rs.7 a kg., how many kgs. of brand A are needed to make 40kgs. of the mixture?

    a. Brand A needed is 24kgs.
    b. Brand B needed is 24kgs
    c. Brand A and B needed is 12kgs
    d. None of the above

2. The bending moment at a beam cross-section, where shear force is zero, is

    (a) zero   (b) maximum
    (c) minimum   (d) either maximum or minimum.

3. One dog tells the other that there are two dogs in front of me. The other one also shouts that he too had two behind him. How many are they?

    a. One
    b. Four
    c. Three.
    d. None of the above

4. A prismatic beam fixed at both ends carries a uniformly distributed load over the entire span. The ratio of bending moment at support to bending moment at midspan is

    (a) 0.5   (b) 1.0   (c) 1.5   (d) 2.0

5. The mortar in which, both cement and lime are used as binding materials, is called

    (a) Light weight mortar   (b) Fire resistant mortar
    (c) Gauged mortar   (d) Lime mortar

6. A man ate 100 bananas in five days, each day eating 6 more than the previous day. How many bananas did he eat on the first day?

    a. Eight

b. Four
c. Three.
d. None of the above

7. A roof which slopes in four directions is called
(a) Shed roof   (b) Gable end roof   (c) Hipped roof   (d) Gambrel roof

8. ABCE is an isosceles trapezoid and ACDE is a rectangle. AB = 10 and EC = 20. What is the length of AE?

     a. AE= 10
     b. AE = 20
     c. AE = 5
     d. None of the above

9. In the given figure, PA and PB are tangents to the circle at A and B respectively and the chord BC is parallel to tangent PA. If AC = 6 cm, and length of the tangent AP is 9 cm, then what is the length of the chord BC?

     a. BC= 10cm
     b. BC = 20cm
     c. BC = 4cm
     d. None of the above

10. Three cards are drawn at random from an ordinary pack of cards. Find the probability that they will consist of a king, a queen and an ace.

     a. 64/2210
     b. 64/2101
     c. 64/2012
     d. None of the above

11. Locating the position of a plane table station with reference to three known points, is known as
(a) Intersection method   (b) Radiation method
(c) Resection method   (d) Three point problem.

12. A number of cats got together and decided to kill between them 999919 mice. Every cat killed an equal number of mice. Each cat killed more mice than there were cats. How many cats do you think there were ?

     a.   919
     b.   991
     c.   199
     d.   None of the above

13: A first class brick immersed in water for 24 hours, should not absorb water more than

A. 5%
B. 10%
C. 20%
D. 25%

14: Pelton wheel is a turbine with

A. Axial flow
B. Radial flow
C. Mixed flow

D. Tangential flow

15. Which of the following is/are the assumption(s) of Bernaulli's equation?

1] There is loss of liquid while flowing.
2] There is no external force except the gravity acts on the liquid.
3] The velocity of energy of liquid particle, across any cross-section of pipe is uniform.
4] Both [2] and [3]

16. The characteristic strength of concrete as per IS-456, is defined as that compressive strength below which not more than

(a) 10 percent of test results fall
(b) 5 percent of test results fall
(c) 2 percent of test results fall
(d) None of the above

17. The permanent deformation of concrete with time, under sustained load is called
(a) Creep
(b) relaxation
(c) viscosity
(d) viscoelasticity

18. In constructions, why are the lintels preferred to arches?

1] Arches will not long last
2] Arches require more head room to span the open as like doors, windows etc.
3] Arches require strong abutments to withstand arch thrust
4] Bothe [2] and [3]

19. An R C T-beam behaves as a rectangular beam of width equal to flange width if its neutral axis
(a) Remains within the flange
(b) Remains below the flange
(c) Coincides with the geometric centre of the section
(d) None of the above.

20. What is called a 'level line'?

1] The line parallel to the mean sphireodal surface of earth
2] The line is horizontal
3] The line passing through the centre of cross-hairs and the centre of the eye piece
4] The line passing through the objective lens and the eye piece of a dumpy or tilting level

21. A column splice is used to increase
(a) length of the column
(b) strength of the column
(b) Cross-sectional area of the column
(d) None of the above

22.Consider a non-homogeneous system of linear equations representing mathematically an over determined system. Such a system will be

(a) consistent having a unique solution
(b) consistent having a many solutions
(c) inconsistent having a unique solution
(d) inconsistent having no solution

23. Which one of the following statement is NOT true ?

(a) The measure of skewness is dependent upon the amount of dispersion
(b) In a symmetric distribution, the values of mean, mode and median are the same
(c) In a positively skewed distribution : mean > median > mode
(d) In a negatively skewed distribution : mode > mean > median

24. The symmetry of stress tensor at a point in the body under equilibrium is obtained from

(a) conservation of mass
(b) force equilibrium equations
(c) moment equilibrium equations
(d) conservation of energy

25. The components of strain tensor at a point in the plane strain case can be obtained by measuring longitudinal strain in following directions

(a) along any two arbitrary directions
(b) along any three arbitrary directions
(c) along two mutually orthogonal directions
(d) along any arbitrary direction

26. Total Kjedahl nitrogen is a measure of

(a) total organic nitrogen
(b) total organic and ammonia nitrogen
(c) total ammonia nitrogen
(d) total inorganic and ammonia nitrogen

27. The length of Summit Curve on a two lane two way highway depends upon

(a) allowable rate of change of centrifugal acceleration
(b) coefficient of lateral friction
(c) required Stopping Sight Distance
(d) required Overtaking Sight Distance

28. Which one of the following is taken into consideration while determining overtaking sight distance in four lane highway?
(a) Distance covered during reaction time
(b) Distance covered during overtaking operation
(c) Reaction time plus overtaking distance
(d) Distance covered during reaction time plus distance covered during overtaking operation plus the distance covered by the opposing traffic

29. The necessary and sufficient condition for a surface to be called as a free surface is

(a) no stress should be acting on it
(b) tensile stress acting on it must be zero
(c) shear stress acting on it must be zero
(d) no point on it should be under any stress

30. Which of the following statement is NOT true in the context of capillary pressure in soils ?

(a) Water is under tension in capillary zone
(b) Pore water pressure is negative in capillary zone
(c) Effective stress increases due to capillary pressure
(d) Capillary pressure is more in coarse grained soils

31.Name the traffic survey data which is plotted by means of "Desire lines".

(a) Accident
(b) Classified volume
(c) Origin and Destination
(d) Speed and Delay

32. The number of simultaneous equations to be solved in the slope deflection method, is equal to :

A.the degree of statical indeterminacy
B.the degree of kinematic indeterminacy
C.the number of joints in the structure
D.none of the above

33. The treatment that should be given to the water from a deep tube well is :

A.pre-settling only
B.coagulation and flocculation only
C.filtration only
D.disinfection only

34. In a steady radial flow into an intake, the velocity is found to vary as $(1/r^2)$, where *r* is the radial distance. The acceleration of the flow is proportional to

A.$1/r^5$ B.$1/r^3$
C.$1/r^4$ D.$1/r$

35. If it takes five minutes to boil one egg, how long will it take to boil four eggs?

a.   Eight minutes
b.   Five minutes
c.   Three minutes
d.   None of the above

36. Three containers A, B and C have volumes a, b, and c respectively; and container A is full of water while the other two are empty. If from container A water is poured into container B which becomes 1/3 full, and into container C which becomes 1/2 full, how much water is left in

a.   Container A
b.   Container B
c.   Container C
d.   None of the above

37. A wizard named Nepo says "I am only three times my son's age. My father is 40 years more than twice my age. Together the three of us are a mere 1240 years old." How old is Nepo?

    a.   360 years old.
    b.   120 years old.
    c.   180 years old
    d.   None of the above

38. The accuracy of measurement in chain surveying, does not depend upon

a) importance of the features

b) scale of the plotting

c) length of the offset

d) general layout of the chain lines.

39. Hydrographic surveys deal with the mapping of

    a.   heavenly bodies
    b.   large water bodies
    c.   mountaineous region
    d.   canal system

40. A deep well

(a) Is always deeper than a shallow well   (b)Is weaker structurally than a shallow well
(c) Has more discharge than a shallow well (d) All of the above.

41. Select the strength parameter of concrete used in design of plain jointed cement concrete pavements from the following choices:
    a. Tensile strength
    b. Compressive strength
    c. Flexural strength
    d. Shear strength

42. The uplift pressure on the face of a drainage gallery in a dam is equal to
  (a) Hydrostatic pressure at toe
  (b) Hydrostatic pressure at heel
  (c) Two-third of hydrostatic pressure at toe plus one-third of hydrostatic pressure at heel
  (d) None of the above.

43. The minute hand of a clock overtakes the hour hand at intervals of 64 minutes of correct time. How much a day does the clock gain or lose?

    a. 23 8/11 minutes
    b. 22 8/11 minutes
    c. 32 8/11 minutes
    d. None of the above

44. An isohyet is a line joining points of

(A) equal temperature
(B) equal humidity
(C) equal rainfall depth
(D) equal evaporation

45. Bligh's creep theory assumes that
(a) The percolation water creep is along the contact of the base profile of the apron with the subsoil
(b) The percolation water creep is in a straight path under the floor
(c) The percolation water creep is in a straight path under the foundation
(d) None of the above.

46. Aeration of water is done for the removal of
(a) Hardness   (b) Turbidity   (c) Colour   (d) Odour

47. From 5 different green balls, four different blue balls and three different red balls, how many combinations of balls can be chosen taking at least one green and one blue ball?

(A) 3270
(B) 3072
(C) 3720
(D) None of the above

48. Three pipes, A, B, & C are attached to a tank. A & B can fill it in 20 & 30 minutes respectively while C can empty it in 15 minutes. If A, B & C are kept open successively for 1 minute each, how soon will the tank be filled?

(A) 167 minutes
(B) 176 minutes
(C) 617 minutes
(D) None of the above

49. In water distribution pipes, air valves are provided at
(a) Lower points   (b) Junction points   (c) Higher points   (d) Anywhere

50. Biochemical Oxygen Demand (BOD) of safe drinking water must be
(a) Nil   (b) 5   (c) 10   (d) 15

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