\*\*\*Sub Engineer\*\*\*

1. If the radius of a simple curve is R, the length of the chord for calculating offsets by the method of chords produced, should not exceed.

a. R/10

b. R/15

c. R/20

d. R/25.

2. The main principle of surveying is to work

a. from part to the whole

b. from whole to the part

c. from higher level to the lower level

d. from lower level to higher level.

3. For the construction of highway (or railway)

a. longitudinal sections are required

b. cross sections are required

c. both longitudinal and cross sections are required

d. none of these.

4. An imaginary line joining the points of equal elevation on the surface of the earth, represents

a. contour gradient

b. contour line

c. level line

d. none of these.

5. Ultimate strength to cement is provided by

a. Tricalcium silicate

b. Di-calcium silicate

c. Tri-calcium aluminate

d. Tetra calcium alumino ferrite.

6. Vanadium steel is generally used for

a. railway switches and crossing

b. bearing balls

c. magnets

d. axles and springs.

7. Varnish is a transparent or semi-transparent solution of resinuous substances in

a. alcohol

b. linseed

c. turpentine

d. all the above.

8. Wrought iron contains carbon about

a. 1.5% to 5.5%

b. 0.5% to 1.75%

c. 0.1% to 0.25%

d. none to these.

9. The assumption in the theory of bending of beams, is :

a. material is isotropic

b. Young's modulus is same in tension as well as in compression

c. each layer is independent to expand or to contract

d. all the above.

10. A rolled steel joist is simply supported at its ends and carries a uniformly distributed load which causes a maximum deflection of 10 mm and slope at the ends of 0.002 radian. The length of the joist will be,

a. 12 m

b. 14 m

c. 16 m

d. 18 m

11. For a given material Young's modulus is 200 GN/m2 and modulus of rigidity is 80 GN/m2. The value of Poisson's ratio is

a. 0.20

b. 0.25

c. 0.30

d. 0.40

12. A three-hinged arch is said to be :

a. statically determinate structure

b. statically indeterminate structure

c. a bent beam

d. none of these.

13. Unit of kinematic viscosity is

a. m2/sec

b. Newton sec/m2

c. Newton sec/m3

d. Kg sec/m2.

14. The phenomenon occuring in an open channel when a rapidly flowing stream abruptly changes to a slowly flowing stream causing a distinct rise of liquid surface, is

a. water hammer

b. hydraulic jump

c. critical discharge

d. none of these.

15. The side slope of Cipolletti weir is generally kept

a. 1 to 4

b. 1 to 3

c. 1 to 2

d. 1 : 5

16. Highest dam in India, is

a. Bhakra dam

b. Hirakund dam

c. Nagarjuna Sagar dam

d. Iddiki dam.

17. Factor of safety against sliding of a slope, is the ratio of

a. actual cohesion to that required to maintain stability of slope

b. shear strength to shear stress along the surface

c. neither (a) nor (b)

d. both (a) and (b).

18. The fluid generally used for grouting is

a. clay suspension

b. sodium silicate

c. bitumen emulsion

d. all the above.

19. The ultimate Settlement of a soil is directly proportional to:

a. compressive index

b. void ratio

c. both (a) and (b)

d. none of these.

20. Pick up the correct statement from the following:

a. Failure plane carries maximum shear stress

b. Failure plane does not carry maximum shear stress

c. Failure plane carries shear stress equal to maximum shear stress

d. None of these.

21. For initial estimate for a beam design, the width is assumed

a. 1/20th of span

b. 1/25th of span

c. 1/30th of span

d. 1/40th of span.

22. The width of the flange of a T-beam, which may be considered to act effectively with the rib depends upon

a. overall thickness of the rib

b. centre to centre distance between T-beams

c. span of the T-beam

d. all the above.

23. If T and R are tread and rise respectively of a stair, then

a. 2R + T = 60

b. R + 2T = 60

c. 2R + T = 30

d. R + 2T= 30

24. A continuous beam shall be deemed to be a deep beam if the ratio of effective span to overall depth, is

a. 2.5

b. 2.0

c. less than 2

d. less than 2.5

25. Pick up the correct statement from the following:

a. Flush door is generally provided in dinning room

b. Revolving door is generally provided in cinema halls

c. Sliding door is generally provided in show rooms

d. All the above.

26. Grillage foundation

a. is light and economical

b. does not require deep cutting as the required base area with required pressure intensity is obtained at a shallow depth

c. is constructed by rolled steel joists (R.S.J.) placed in single or double tier

d. all the above.

27. According to I.S. : 456, the number of grades of concrete mixes, is

a. 4

b. 5

c. 6

d. 7

28. M 150 grade of concrete approximates

a. 1 : 1 :2 mix

b. 1 : 2 : 4 mix

c. 1 : 1.5 : 3 mix

d. none of these.

29. In pressure supply mains, water hammer pressure is reduced by providing

a. sluice valves

b. air valves

c. pressure relief valves

d. none of the these.

30. Pick up the incorrect statement from the following regarding fire hydrants

a. Fire hydrants are fitted in water mains at 100 m to 150 m apart at fire

b. The minimum water pressure hydrants, is kept 1.5 kg/cm2

c. The water at pressure 1 to 1.5 kg/cm2 is made available for 4 to 5 hours for constant use

d. None of these.

31. In olden days the type of section adopted in trunk and out fall sewers was

a. parabolic shaped

b. horse shoe shaped

c. egg shaped

d. circular shaped.

32. The coagulant widely used for sewage treatment, is

a. alum

b. ferric chloride

c. ferric sulphate

d. chlorinated copperas.

33. A river training work is generally required when the river is

a. meandering

b. aggrading

c. degrading

d. all the above.

34. Pick up the incorrect statement from the following

a. Side walls of a venturi head flume are splayed out from the end of the throat at 1 : 10 for a length of 4.5 m

b. Length of side walls should be such that the width of the flume is made equal to 2/3rd the bed width of the distributary

c. Once the width of the flume becomes 2/3rd of the width of the distributary, the splayed walls are increased to 1 in 3 to get full bed width

d. None of these.

35. The sinuosity of a meander is the ratio of

a. meander length and the width of meander

b. meander length and half width of the river

c. curved length and the straight distance

d. none of these.

36. Irrigation canals are generally aligned along

a. ridge line

b. contour line

c. valley line

d. straight line.

37. Pick up the correct statement from the following:

a. Safety fences are provided on either side of a roadway if embankments are in excess of 6 metres

b. Safety fences are provided on outside of the curves of radii less than 750 m if the embankments are between 3 metres and 6 metres

c. Guard stones are provided at 2.5 metres intervals if embankments are between 1.6 metres to 3 metres

d. All the above.

38. According to the recommendations of Nagpur Conference, the width formation of an ideal National Highway in hard rock cutting, is

a. 7.9 m

b. 6.9 m

c. 6.5 m

d. 7.5 m

39. Volume of traffic which would immediately use a new road or an improved one when opened to traffic, is known

a. development traffic

b. current traffic

c. general traffic

d. normal traffic growth.

40. Design of horizontal and vertical alignments, super-elevation, sight distance and grades, is worst affected by

a. width of the vehicle

b. length of the vehicle

c. height of the vehicle

d. speed of the vehicle

41. Pick up the correct statement from the following:

a. The bent up bars at a support resist the negative bending moment

b. The bent up bars at a support resist the sharing force

c. The bending of bars near supports is generally at 45°

d. All the above.

42. In case of laying gullies, siphons, intercepting traps, the cost includes

a. Setting and laying

b. Bed concreting

c. Connection to drains

d. All of these.

43. While estimating a reinforced cement structure, the omitted cover of concrete is assumed

a. at the end of reminforcing bar, not less than 25 mm or twice the diameter of the bar

b. in thin slabs, 12 mm minimum or diameter of the bar whichever is more

c. for reinforcing longitudinal bar in a beam 25 mm minimum or diameter of the largest bar which is more

d. All the above.

44. While preparing a detailed estimate

a. Dimension should be measured correct to 0.01 m

b. Area should be measured correct to 0.01 sqm

c. Volume should be measured correct to O.Olcum

d. All the above.

45. The main principle of an organisation, is

a. cohegency

b. effective control at all levels

c. delegation of authority

d. all the above.

46. Military organisation is known as

a. line organisation

b. line and staff organisation

c. functional organisation

d. none of these.

47. In the given figure, the network of a project represents

a. activity of an excavation of a footing

b. activity of an excavation which starts at event No. 1 and ends at even No. 2

c. activity of excavation which takes 8 units of time

d. none of these.

48. The Overall in-charge of an organisation at the site responsible for the execution of the works, is

a. Engineer

b. Junior Engineer

c. Sub overseer

d. Assistant Engineer.

49. Pick up the correct statement from the following:

a. The distance between the points of intersection of the extreme tangents to the transition curve is kept greater than 7500 m x sum of grade changes at the point of intersection

b. The rate of change of grade is limited to 0.3% per 30 m length of the curve

c. According to I.C.A.O. the maximum longitudinal gradient along a runway is limited to 1.5%

d. All the above.

50. According to I.C.A.O. the recommended length of air ports is decided on

a. sea level elevation

b. standard sea level temperature (15°C)

c. effective gradient percentage

d. all the above.