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

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

a. length of the offset

b. scale of the plotting

c. importance of the features

d. general layout of the chain lines.

2. Diopter is the power of a lens having a focal length of

a. 50 cm

b. 75 cm

c. 100 cm

d. 125 cm

3. While viewing through a level telescope and moving the eye slightly, a relative movement occurs between the image of the levelling staff and the cross hairs. The instrument is

a. correctly focussed

b. not correctly focussed

c. said to have parallax

d. free from parallax.

4. An ideal vertical curve to join two gradients, is

a. parabolic

b. elliptical

c. hyperbolic

d. none of these.

5. Fibre glass

a. has a higher strength to weight ratio

b. is shock proof and fire retardent

c. does not decay

d. all the above.

6. Bitumen felt

a. is used as water proofing material

b. is used as damp proofing material

c. is made from bitumen and hessian fibres

d. all the above.

7. The commonly used colour pigment in paints, is

a. carbon black

b. iron oxide

c. lamp black

d. all the above.

8. Kaolin is chemically classified as

a. metamorphic rock

b. argillaceous rock

c. calcareous rock

d. silicious rock.

9. A steel rod 1 metre long having square cross section is pulled under a tensile load of 8 tonnes. The extension in the rod was 1 mm only. If Esteel = 2 x 106 kg/cm2, the side of the rod, is

a. 1 cm

b. 1.5 cm

c. 2 cm

d. 2.5 cm

10. If ΣH and ΣV are the algebraic sums of the forces resolved horizontally and vertically respectively, and ΣM is the algebraic sum of the moments of forces about any point, for the equilibrium of the body acted upon

a. ΣH = 0

b. ΣV = 0

c. ΣM = 0

d. all the above.

11. If the rivets in adjacent rows are staggered and outermost row has only one rivet, the arrangement of the rivets, is called

a. chain riveting

b. zig-zag riveting

c. diamond riveting

d. none of these.

12. For a simply supported beam of length L, the bending moment M is described as M = a (x - x3/L2), 0 ≤ x < L; where a is a constant. The shear force will be zero at

a. the supports

b. x = L/2

c. x = L/3

d. x = L/3

13. The ratio of maximum velocity to average velocity of viscous fluid through a circular pipe is

a. 0.5

b. 0.75

c. 1.25

d. 2.00

14. Differential manometers are used to measure

a. pressure in water channels, pipes, etc.

b. difference in pressure at two points

c. atmospheric pressure

d. very low pressure.

15. If the total head of the nozzle of a pipe is 37.5 m and discharge is 1 cumec, the power generated is

a. 400 H.P.

b. 450 H.P.

c. 500 H.P.

d. 550 H.P.

16. If the volume of a liquid weighing 3000 kg is 4 cubic metres, 0.75 is its

a. specific weight

b. specific mass

c. specific gravity

d. none of these.

17. The weight of a pycnometer containing 400 g sand and water full to the top is 2150 g. The weight of pycnometer full of clean water is 1950 g. If specific gravity of the soil is 2.5, the water content is

a. 5%

b. 10%

c. 15%

d. 20%

18. The effective size of particles of soil is denoted by

a. D10

b. D20

c. D30

d. D60

19. The active earth pressure of a soil is proportional to (where φ is the angle of friction of the soil)

a. tan (45° - φ)

b. tan2 (45° + φ/2)

c. tan2 (45° - φ/2)

d. tan (45° + φ)

20. The seepage force in a soil, is

a. perpendicular to the equipotential lines

b. proportional to the exit graident

c. proportional to the head loss

d. all the above.

21. The percentage of minimum reinforcement of the gross sectional area in slabs, is

a. 0.12%

b. 0.15%

c. 0.18%

d. 0.20%

22. The thickness of base slab of a retaining wall generally provided, is

a. one-third of the width of the stem at the bottom

b. one fourth of the width of the steam at the bottom

c. width of the stem at the bottom

d. twice the width of the steam at the bottom.

23. 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

24. If the effective length of a 32 cm diameter R.C.C. column is 4.40 m, its slenderness ratio, is

a. 45

b. 50

c. 55

d. 60

25. The piece of a brick cut with its one corner equivalent to half the length and half the width of a full brick, is known as

a. queen closer

b. bevelled closer

c. king closer

d. half king closer.

26. The member which is placed horizontally to support common rafter of a sloping roof, is

a. purlin

b. cleat

c. batten

d. strut.

27. For road pavements, the cement generally used, is

a. rapid hardening cement

b. low heat cement

c. blast furnace slag cement

d. none of these.

28. Pick up the correct statement from the following:

a. Water and aggregates are measured in litres

b. The finished concrete is measured in cubic metres

c. 20 bags of cement make one tonne

d. All the above.

29. As per IS : 1172-1963, water required per head per day for average domestic purposes, is

a. 65 litres

b. 85 litres

c. 105 litres

d. 135 litres.

30. Surge tanks are used

a. for storage water

b. to increase the velocity in a pipeline

c. as overflow valves

d. to guard against water hammer.

31. The screens are fixed

a. perpendicular to the direction of flow

b. parallel to the direction of flow

c. at an angle 30° to 60° to the direction of flow

d. none of these.

32. A rainfall may be classified as acidic if its pH value is less or equal to

a. 6

b. 7

c. 5

d. 6.5

33. Pick up the incorrect statement from the following. Culturable commanded area is the gross area of an irrigation canal system less

a. populated area

b. alkaline area

c. forest area

d. fallow land.

34. The crest level of a canal diversion head work, depends upon

a. discharge perimeters

b. pond level

c. all the above

d. none these.

35. For a given discharge in a channel, Blench curves give the relationship between the loss of head (HL) and

a. specific energy up-stream

b. specific energy down-stream

c. critical depth of water down-stream

d. depth of water down-stream

36. Groynes are generally built

a. perpendicular to the bank

b. inclined up stream up to 30°

c. inclined down stream upto 30°

d. all the above.

37. The minimum ratio of the radii of two circular curves of a compound curve, is kept

a. 1.25

b. 1.5

c. 1.75

d. 2.0

38. In India the modes of transportation, in the order of their importance, are

a. shipping, roads, railways, air transport

b. roads, railways, air transport, shipping

c. railways, roads, shipping, air transport

d. shipping, railways, roads, air transport.

39. 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. L2/24 R

b. L3/24 R

c. L4/24 R

d. L/12 R

40. Increase in traffic volume, due to increase in transport vehicles, is known as

a. normal traffic growth

b. generated traffic growth

c. current traffic

d. none of these.

41. The order of booking dimensions is

a. Length, breadth, height

b. Breadth, length, height

c. Height, breadth, length

d. None of these.

42. As per Indian Standard Specifications, the peak discharge for domestic purposes per capita per minute, is taken

a. 1.80 litres for 5 to 10 users

b. 1.20 litres for 15 users

c. 1.35 for 20 users

d. All the above.

43. The inspection pit or chamber is a manhole provided in a base drainage system

a. at every change of gradient

b. at every 30 m intervals

c. at the point where vertical soil pipe joins the house drain

d. All the above.

44. Pick up the correct statement in case of water supply.

a. Cutting through walls and floors are included with the item

b. Pipes are classified according to their sizes and quality

c. In laying pipes, the method of jointing and fixing is specifically specified

d. All the above.

45. Critical path method

a. provides a realistic approach to daily problems

b. avoids delays which are very common in bar charts

c. was invented by Morgan R. Walker of Dupot and James E. Kalley or Remington U.S.A. in 1957

d. All the above.

46. Various activities of a project, are shown on bar charts by

a. vertical lines

b. horizontal lines

c. dots

d. crosses.

47. Final technical authority of a project lies with

a. Assistant Engineer

b. Executive Engineer

c. Superintending Engineer

d. Chief Engineer.

48. A construction schedule is prepared after collecting

a. output of labour

b. output of machinery

c. quantity of various items

d. all the above.

49. Pick up the incorrect statement from the following:

a. In single engine aeroplanes, the engine is provided in the nose of the aircraft

b. In double engine aeroplanes, one engine on either wing is placed symmetrically

c. In three engine aeroplanes, two engines are placed on both wings and one engine is placed in the tail

d. None of these.

50. The bearing of the runway at threshold is 290°, the runway number is

a. N 70° W

b. 290°

c. 29°

d. W 20° N