## CIVIL TEST 14-04-2017

1. Sand particles are made of
a) rock minerals      b) kaolinite
c) illite                   d) montmorillonite

2. The critical height of an unsupported vertical cut in a cohesive soil is given by

a) $\dfrac{4C}{\gamma}\tan\left(45° + \dfrac{\phi}{2}\right)$

b) $\dfrac{2C}{\gamma}\tan\left(45° + \dfrac{\phi}{2}\right)$

c) $\dfrac{4C}{\gamma}\cot\left(45° + \dfrac{\phi}{2}\right)$

d) $\dfrac{2C}{\gamma}\cot\left(45° + \dfrac{\phi}{2}\right)$

Where C = unit cohesion

$\phi$ = angle of internal friction

$\gamma$ = unit weight of soil

3. Voids ratio of a soil mass can
a) never be greater than unity
b) be zero
c) take any value greater than zero
d) take values between 0 and 1 only

4. A soil has a liquid limit of 45% and lies above the A-line when plotted on a plasticity chart. The group symbol of the soil as per IS Soil Classification is
a) CH          b) CI
c) CL          d) MI

5. The moisture content of a clayey soil is gradually decreased from a large value. What will be the correct sequence of the occurrence of the following limits?
1. Shrinkage limit   2. Plastic limit
3. Liquid limit
Select the correct answer using the codes given below:
a) 1, 2, 3        b) 1, 3, 2
c) 3, 2, 1        d) 3, 1, 2

6. Which one of the following equations correctly gives the relationship between the specific gravity of soil grains (G) and the hydraulic gradient (i) to initiate 'quick' condition in sand having a void ratio of 0.5?
a) G = 0.5 i + 1      b) G = i + 0.5
c) G = 1.5 i + 1      d) G 1.5 i – 1

7. The slope of isochrones at any point at a given time indicates the rate of change of

a) effective stress with time
b) effective stress with depth
c) pore water pressure with depth
d) power water pressure with time

8. When the plastic limit of a soil is greater than the liquid limit, then the plasticity index is reported as
a) negative                b) zero
c) non-plastic (NP)      d) 1

9. Mechanical stabilization of soil is done with the help of
a) cement              b) lime
c) bitumen             d) proper grading

10. Lime stabilisation is very effective in treating
a) sandy soils            b) silty soils
c) non-plastic soils     d) plastic clayey soils

11. Bituminous paint consists of bitumen dissolved in
a) spirit                    b) naptha
c) linseed oil             d) either a) or b)

12. The commonly used cement in cement paints is
   a) White cement
   b) Portland cement
   c) Alumina cement
   d) Rapid hardening cement

13. The solvent used in cement paints is
a) thinner          b) turpentine
c) water             d) spirit

14. The base material for distemper is
a) chalk             b) lime
c) clay               d) lime putty

15. The strength of timber is maximum in the direction_____ to the grains.
a) parallel                 b) perpendicular

16. For R.C.C. construction, the maximum size of coarse aggregate is limited to
a) 10 mm          b) 15 mm
c) 20 mm          d) 25 mm

17. Concrete is strong in tension but weak in compression
a) True            b) False

18. Consolidation of concrete should proceed
   a) before mixing
   b) before placing
   c) immediately after mixing
   d) immediately after placing

19. The workability of cement concrete can be improved by
   a) increasing the quantity of cement
   b) increasing the proportion of coarse aggregate
   c) increasing the quantity of sand

d) all of the above

20. The wood generally used for railway sleepers is
a) mango          b) kail
c) babul          d) deodar

21.Effective throat thickness of a fillet weld is
   a) 0.707 * size of weld
   b) 1.414 * size of weld
   c) A function of the angle between fusion faces
   d) Equal to the side of the fillet

22.If the rivet value is 16.8 KN and force in the member is 16.3 KN, then the number of rivets required for the connection of the member to a gusset plate is
   a) 1
   b) 2
   c) 3
   d) 4

23.If a prismatic member with area of cross section A is subjected to a tensile load P, then the maximum shear stress and its inclination with the direction of load respectively are
   a) P/A and 45°
   b) P/2A and 45°
   c) P/2A and 60°
   d) P/A and 30°

24.The sum of normal stresses is
   a) Constant
   b) Variable
   c) Dependent on the planes
   d) None of the above

25.The radius of Mohr's circle for two equal unlike principal stresses of magnitude P is
   a) P
   b) P/2
   c) Zero
   d) None of these

26.Metacentric height for small values of angle of heel is the distance between the
   a) Center of gravity and center of buoyancy
   b) Center of gravity and metacenter
   c) Center of buoyancy and metacenter
   d) Free surface and center of buoyancy

27.A floating body is said to be in a state of stable equilibrium
   a) When its metecentric height is zero
   b) When the metacentric is above the center of gravity
   c) When the metacentric is below the center of gravity

d) Only when its center of gravity is below its center of buoyancy

28. The compressive strength of 100 mm cube as compared to 150 mm cube is always
(A) Less  (B) More
(C) Equal          (D) None

29. Increase in the moisture content in concrete
(A) Reduces the strength
(B) Increases the strength
(C) Does not change in strength
(D) All of the above

30.In the prismatic compass
   (A) The magnetic needle moves with the box
   (B) The line of the sight does not move with the box
   (C) The magnetic needle and graduated circle do not move with this box
   (D) The graduate circle is fixed to the box and the magnetic needle always remains in the N-S direction

31.The graduations in prismatic compass
   (i)Are inverte
   (ii) are upright
   (iii) run clockwise having 0° at south
   (iv) run clockwise having 0° at north
   The correct answer is
   a) (i) and (ii)        b) (i) and (iv)
   c) (ii) and (iii)      d) (ii) and (iv)

32. As compared to riveting, welding is preferred these days because
   (a) It is more economical
   (b) It has more efficiency
   (c) It is a silent process
   (d) all the above

33. The advantage of welding lies in
   (a) rigid joints
   (b) better appearance of joints
   (c) quick and economical process
   (d) all the above

34. The weakest plane in a fillet weld is
   (a) Side Parallel to force
   (b) Side normal to the force
   (c) Smaller of sides
   (d)Throat

35. The monthly rainfall at a place A during September 1982 was recorded as 55 mm above normal. Here the term normal means
 (a) The rainfall in the same month in the previous year
(b) The rainfall was normally expected based on

previous month's data

(c) The avg. rainfall computed from past 12 month record

(d) The average monthly rainfall for September computed from specific 30 years of past record

36. The double mass curve technique is adapted to

(a) Check the consistency of raingauge record

(b) To find avg. rainfall over a number of year

(c) To find number of rainge

(d) To estimate the missing rainfall data

37. Coefficient of friction is less when the pavement surface is
   a) Rough
   b) Dry
   c) Smooth and dry
   d) Smooth and wet

38. Camber in the road is provided for
   a) Effective drainage
   b) Counteracting the centrifugal force
   c) Having proper sight distance
   d) None or the above

39. Turbidity is measured on
   a) Standard silica scale
   b) Standard cobalt scale
   c) Standard platinum scale
   d) Platinum cobalt scale

40. The most common cause of acidity in water is
   a) Carbon dioxide
   b) Oxygen
   c) Hydrogen
   d) Nitrogen

41. AZ, CX, FU, ?
   (a) IR    (b) IV    (c) JQ    (d) KP

42. ajs, gpy, ?, sbk, yhq
   (a) dmv    (b) mve    (c) oua    (d) qzi

43. ejo tyd ins xch ?
   (a) nrw    (b) mrw    (c) msx
   (d) nsx    (e) nsw

44. A, CD, GHI, ?, UVWXY
   (a) LMNO          (b) MNO
   (c) MNOP          (d) NOPQ

45. ATTRIBUTION, TTRIBUTIO, RIBUTIO, IBUTI, ?
   (a) IBU    (b) UT    (c) UTI
   (d) BUT    (e) None of these

46. The language spoken by the largest number of people in the world is
   (a) Hindi          (b) English
   (c) Mandarin       (d) Spanish

47. The terms "bull" and "bear" are used in the
   (a) Bihar Government's Animal Husbandry Department
   (b) Income Tax Department
   (c) The CBI
   (d) The Stock Exchange

48. Jeddah is an important
   (a) Sea port       (b) Airport
   (c) Island         (d) Lake

49. The Capital of India was shifted from Calcutta to Delhi in
   (a) 1910           (b) 1911
   (c) 1914           (d) 1913

50. Which one of the following pairs is not correctly matched?
   (a) Cosmic Background Explorer (COBE): Satellite Programme
   (b) Falcon: Under-sea cable system
   (c) Discovery: Space shuttle
   (d) Atlantis: Space station

| CIVIL TEST ANSWER KEY |
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| 14-04-2017 |

1. A)
2. A)
3. B)
4. B)
5. C)
6. C)
7. C)
8. B)
9. D)
10. D)
11. D)
12. A)
13. C)
14. A)
15. A)
16. D)
17. B)
18. D)
19. A)
20. B)
21. C)
22. B)
23. B)
24. A)
25. A)
26. B)
27. B)
28. B)
29. A)
30. C)
31. C)
32. D)
33. D)
34. B)
35. D)
36. A)
37. D)
38. A)
39. A)
40. A)
41. C)
42. B)
43. B)
44. C)
45. C)
46. C)
47. D)
48. B)
49. B)
50. D)