

# **ENGINEERING ACADEMY DEHRADUN**

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**MOB: 08449597123, 09411340612**

**Prep: Mr. Sunny Singh**

## **CIVIL TEST**

**[21-APRIL-2017]**

- In a mortar, the binding material is
  - Cement
  - Sand
  - Surkhi
  - Cinder
- Lacquer paints
  - are generally applied on structural steel
  - are less durable as compared to enamel paints
  - consist of resin and nitro-cellulose
  - contain alcohol as thinner
  - all of the above
- Wrought iron contains carbon upto
  - 0.25%
  - 1.0%
  - 1.5%
  - 2%
- Pick up the polymineralic rock from the following:
  - Quartz sand
  - Pure gypsum
  - Magnesite
  - Granite
  - None of these
- Pick up the correct statement from the following:
  - For thin structures subjected to wetting and drying, the water cement ratio should be 0.45
  - For mass concrete structures subjected to wetting and drying, the water ratio should be 0.5
  - For thin structures which remain continuously under water, the water-cement ratio by weight should be 0.55
  - For massive concrete structures which remain continuously under water, the water cement ratio by weight should be 0.65
  - All of the above
- Ultimate strength to cement is provided by
  - Tricalcium silicate
  - Di-calcium silicate
  - Tri-calcium aluminate
  - Tetra calcium alumino ferrite
- Elastomers can extend upto
  - five times their original dimensions
  - seven times their original dimensions
  - ten times their original dimensions
  - three times their original dimensions
- Bitumen felt
  - is used as water proofing material
  - is used as damp proofing material
  - is made from bitumen and hessian fibres
  - all the above.
- For trunk and out-fall, the type of sewers generally used
  - standard egg shaped
  - circular shaped
  - horse shoe shaped
  - parabolic shaped
  - semi-elliptical shaped
- The pressure exerted by
  - the sewage when running full from inside, is called internal pressure
  - the internal pressure if any, causes tensile stress in the
  - pressure sewers are designed to be safe in tension
  - all of the above
- Sewer ventilating columns are generally placed at
  - distances 150 m to 300 m
  - upper ends of branch sewers
  - every change in the size of sewers
  - all of the above
- 'Cowl' is provided at
  - lower end of ventilating column
  - upper end of ventilating column
  - upper end of the manhole
  - first step in manhole
- The advantage of reinforced concrete is due to
  - monolithic character
  - fire-resisting and durability
  - economy because of less maintenance cost
  - molding in any desired shape
  - all of the above
- The section of a reinforced beam where most distant concrete fiber in compression and tension in steel attains permissible stresses simultaneously, is called
  - balanced section
  - economic section
  - critical section
  - all of the above
- With usual notations the depth of the neutral axis of a balanced section, is given by
  - $\frac{mc}{t} = \frac{d-n}{n}$
  - $\frac{t}{mc} = \frac{d-n}{n}$
  - $\frac{t}{mc} = \frac{d+n}{n}$
  - $\frac{mc}{t} = \frac{n}{d-n}$

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16. When a large value of radius of gyration is not required
- channels are placed back to back
  - channels flanges are kept inward
  - channel flanges are kept outward
  - none of these
17. Outstanding length of a compression member consisting of a channel, is measured as
- half of the nominal width
  - nominal width of the section
  - from the edge to the first row of rivets
  - none of these
18. The most commonly used sections in lateral system to carry shear force in built up columns, are
- rolled steel flats
  - rolled angles
  - rolled channels
  - all of the above
19. According to I.S. : 800 – 1871, lacing bars resist transverse shear equal to
- 1.0% of the axial load
  - 2.0% of the axial load
  - 2.5% of the axial load
  - 3.0% of the axial load
  - 4.0% of the axial load
20. The critical stress on a column for elastic buckling given by Euler's formula, is
- $f_c = \frac{\pi^2 E}{(l/r)^2}$
  - $f_c = \frac{(l/r)^2}{\pi E}$
  - $f_c = \frac{(l/r)}{\pi E}$
  - $f_c = \frac{\pi^2 E}{(l/r)}$
21. Which one of the following statements is correct?
- Stratiform clouds lead to convective precipitation
  - Cumuliform clouds lead to convective precipitation
  - Orographic clouds lead to orographic precipitation
  - All of these are correct
22. Non-recording rain gauges:
- are widely used in India
  - do not record the rain but only collect the rain
  - collect the rain which is measured by means of graduated cylinders as centimeter of water depth
  - all of these
23. Isohytes:
- are the contours of rainfall
  - are the imaginary lines of equal rainfall
  - represents the rainfall intensity
  - represent the drainage of a catchment
  - both a) and b)
24. Water formed transported soil is
- alluvial
  - marine
  - lacustrine
  - loess
25. Water content of a soil sample is the difference of the weight of the given sample at the given temperature and the weight determined after drying it for 24 hours at temperature ranging from
- 80° to 90°C
  - 90° to 95°C
  - 95° to 100°C
  - 103° to 105°C
  - 105° to 110°C
26. If the specific gravity and voids in soil sample are  $G$  and  $e$  respectively, the hydraulic gradient  $i$ , is
- $\frac{G-1}{1+e}$
  - $\frac{G+1}{1-e}$
  - $\frac{1-G}{1+e}$
  - $\frac{1+G}{1+e}$
27. The critical load for a column of length  $l$  hinged at both ends and having flexural rigidity  $EI$ , is given by
- $P_C = \frac{n^2 EI}{l^2}$
  - $P_C = \frac{nEI}{l^2}$
  - $P_C = \frac{n(EI)}{l^2}$
  - None of these
28. The ratio of longitudinal stress to strain within elastic limit, is known as
- modulus of elasticity
  - shear modulus of elasticity
  - bulk modulus of elasticity
  - tangent modulus
29. The permissible stress in bending for rolled steel I-beams and channels, is
- 1500 kg/cm<sup>2</sup>
  - 1575 kg/cm<sup>2</sup>
  - 945 kg/cm<sup>2</sup>
  - 1650 kg/cm<sup>2</sup>
30. For the same specific force, the two depths at which a given discharge can occur are called
- alternate depths
  - normal depths
  - critical depths
  - conjugate depths

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## **CIVIL [21-4-2017]**

1. a
2. e
3. a
4. d
5. d
6. b
7. c
8. d
9. c
10. d
11. d
12. b
13. e
14. d
15. d
16. b
17. b
18. d
19. c
20. a
21. d
22. d
23. e
24. d
25. e
26. a
27. a
28. a
29. d
30. d

