SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR

Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : Concrete Technology (13A01503)**Course & Branch**: B.Tech - CE **Year &**

Sem:III-B.Tech & I-Sem   **Regulation:** R13

UNIT –IV

ELASTICITY CREEP AND SHRINKAGE

1. a. Explain Schmidt's Rebound Hammer test and the limitations and applications of the same. 5M

    b.Explain the various pulse velocity methods and the techniques measuring the pulse velocity

      through concrete.   5M

2. a. What are the various factors affecting the compressive strength of concrete?   5M

    b.Explain in detail about the rebound hammer test (NDT) that is conducted on existing structure to

      assess its strength with a neat diagram.   5M

3. Explain Creep of concrete and relation between creep and time.   10M

4. a.How the shrinkage of concrete is classified and explain each one of them briefly?   5M

    b.Explain the procedure to conduct Modulus of elasticity test in the laboratory and explain the

      various factors affecting the modulus of elasticity.   5M

5. a.Draw the typical stress-strain curve of concrete and explain the various modulus of elasticity. 5M

    b.Draw the stress-strain curves for aggregate, cement paste and concrete and explain the behavior

      for each of them.   5M

6. a.What is shrinkage of concrete?   5M

    b.Explain the various factors affecting shrinkage of concrete.   5M

7. a. What are the factors that affect the creep and shrinkage of concrete?   5M

    b.How does strength of concrete influence the modulus of elasticity and Poisson's ratio of
      concrete?

                                                                                           5M
8. Explain the procedure for UPV and Rebound hammer test.   10M
9. Explain detail about NDT.   10M

10. a.List out the factors affecting the results of strength test.   2M

    b. Define Creep.   2M

    c. Define Shrinkage.   2M

    d. List out different tests in NDT.   2M

    e. Define Dynamic modulus of Elasticity.   2M

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UNIT – IV

1. To produce impermeable concrete   [   ]
   A. properly graded and non-porous aggregates are required
   B. proper compaction of concrete is required
   C. Both A & B   D. None of the Above

2. Identify the incorrect statement   [   ]
   A. The testing of representative concrete does not give the quality of actual in-place concrete.
   B. Quality control can be exercised by testing three concrete cubes at 28 days
   C. The quality control is carried out much before any cube becomes available for testing
   D. None of the above

3. The concept of performance oriented specifications suffers due to difficulty in
   A. Defining what constitutes satisfactory performance
   B. Setting appropriate performance limits
   C. All the above
   D. None of the above

4. Which of the fallowing statements are incorrect?
   A. uniform workability ensures uniform strength
   B. The ball penetration test can be performed on concrete as placed in the forms
   C. Both A & B
   D. Vee-bee test is suitable for low and very low workability's

5. The permissible variation in compacting factor measurement is
   A. ±25mm   B. One-third of the required value
   C. 0.07 for C.F. values below 0.7   D. None of the above

6. The cement content in a sample of fresh concrete can be determined by
   A. rapid analysis machine   B. EDTA titration method
   C. accelerated strength method   D.None of the above

7. The quality and strength of concrete in a structure can be assessed by
   A. The concrete core test   B. The pull out test
   C. The Schmidt test hammer   D. All the above

8. In ultrasonic test for hardened concrete good quality of concrete is indicated if the pulse velocity is
   A. below 3 km/s   B. above 3.5 km/s
   C. Above 4.5 km/s   D. None of the above

9. Specified compressive strength of concrete is obtained from cube tests at the end of
   A. 3 days   B. 7 days   C. 14 days   D. 28 days

10. Slump test of concrete is a measure of its
    A. consistency   B. compressive strength   C. tensile strength   D. impact value.
11. If the engineer-in-charge approves, the 10 cm cubes may be used for the work test of concrete provided maximum nominal size of aggregate, does not exceed
    A. 10 mm   B. 15 mm   C. 20 mm   D. 25 mm
12. Pick up the incorrect statement applicable to the field test of good cement.
    A. When one thrusts one's hand into a bag of cement, one should feel warm
    B. The colour of the cement is bluish
    C. A handful of cement thrown into a bucket of water should sink immediately
    D. All the above
13. An ordinary Portland cement when tested for its fineness, should not leave any residue on I.S. sieve No. 9, more than
    A. 5%   B. 10%   C. 15%   D. 20%
14. The top diameter, bottom diameter and the height of a slump mould are:
    A. 10 cm, 20 cm, 30 cm   B. 10 cm, 30 cm, 20 cm
    C. 20 cm, 10 cm, 30 cm   D. 20 cm, 30 cm, 10 cm
15. Workability of concrete mix with low water cement ratio is determined by
    A. tensile strength test   B. slump test
    C. compaction factor test   D. none of these
16. Pick up the incorrect statement from the following. For performing compressive strength test of cement
    A. cement and standard sand mortar are used in the ratio of 1: 3
    B. water is added at the rate of + 3.0 percentage of water where P is the percentage of water for standard consistency
    C. A cube mould of 10 cm x 10 cm x 10 cm is used
    D. None of the above
17. The lower water cement ratio in concrete, introduces
    A. smaller creep and shrinkage   B. greater density and smaller permeability
    C. improved frost resistance   D. all the above.
18. Separation of coarse aggregates from mortar during transportation, is known
    A. bleeding   B. Creeping   C. Segregation   D. Shrinkage
19. Separation of water or water sand cement from a freshly concrete, is known
    A. bleeding   B. Creeping   C. Segregation   D. Shrinkage
20. Shrinkage in concrete can be reduced by using
    A. low water cement ratio   B. less cement in the concrete
    C. proper concrete mix   D. None
21. Pick up the correct statement from the following:
    A. According to the petrological characteristics, concrete aggregates are classified as heavy weight, normal weight and light weight
    B. According to the shape of the particles, concrete aggregates are classified as rounded irregular, angular and flaky
    C. According to the surface texture of the particles, the concrete aggregates are classified as glassy, smooth, granular, rough, crystalline, honey combed and porous
    D. All the above.

22. The ratio between stress in steel to that of stress in concrete in expressed as   [   ]
     A. Poisson's ratio   B. Modular ratio   C. Density ratio   D. None
23. Select the Non – destructive test among the following   [   ]
     A. Compression test   B. Flexure test   C. Rebound hammer test   D. All the above
24. The process of selecting suitable ingredients of concrete and determining their
     relative quantities can be called as   [   ]
     A. Mix design   B. Specific gravity   C. Compressive strength   D. None
25. Modulus of rupture of concrete is a measure of _____strength   [   ]
     A. Split tensile   B. Compressive   C. Direct tensile   D. Flexural tensile
26. According to IS 456-2000, the modulus of elasticity of concrete Ec, can be taken as _ [   ]
     A. Ec = 570√fck   B. 5700 fck   C. 5700√fck   D. 5000√fck
27. Increase in the moisture content in concrete _____   [   ]
     A. Reduces the strength   B. Increases the strength
     C. Does not change the strength   D. All the above
28. Modulus of elasticity of steel as per IS : 456—2000 shall be taken as _____   [   ]

     A. 20kN/cm^2 B. 200kN/cm^{2}C. 200kN/mm^2 D. 2 X 106N/cm^2

29. The factor of safety for concrete _____ than steel   [   ]

     A. Lower   B. Higher   C. Equal   D. None

30. According to Indian standards the grading of fine aggregate is divided into _____ [   ]

     A. Two zones   B. Four zones   C. Five zones   D. Three zones

31. With the increase in rate of loading during testing compressive strength of concrete [   ]

     A. Increases   B. Decreases   C. Remains same   D. None

32. To determine the modulus of rupture the size of test specimen used is _____   [   ]

     A. 150 X 150 X 500mm B. 100 X 100 X 700mm   C. 150 X 150 X 700mm   D. None

33. The ratio between stress in steel to that of stress in concrete in expressed as __   [   ]

     A. Poisson's ratio   B. Modular ratio   C. Density ratio   D. None

34. Select the Non – destructive test among the following _____   [   ]

     A. Compression test   B. Flexure test   C. Rebound hammer test   D. All the above

35. The process of selecting suitable ingredients of concrete and determining

their relative quantities can be called as   [   ]

     A. Mix design   B. Specific gravity   C. Compressive strength   D. None

36. The formula for determining the cement content is given by _____   [   ]

     A. W/C ratio/ water content   B. Water content /W/C ratio

     C. Cement / W/C ratio   D. All the above

37. According to India standards the coarse aggregate should conform to _____   [   ]

     A. IS: 383 -70   B. IS: 381-70   C. IS: 382 -70   D. None

38. Standard deviation can be calculated as   [   ]

A. $S = \sum x/n$ B. $S = \sqrt{\sum(x - \overline{x})^2/n\text{-}1}$ C. $S = \sum(x - \overline{x})^2/n$ D. None

39. As per IS: 456-2000, the high strength concrete should have the characteristic strength of _____   [   ]

A. M40   B. M35   C. M65   D. All the above

40. Maturity of concrete is the product of _____   [   ]

A. Time   B. Velocity   C. Time & Temperature   D. None

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