B.Tech. DEGREE EXAMINATION, MAY 2016

Second Semester

15CE101 – BASIC CIVIL ENGINEERING

(For the candidates admitted during the academic year 2015 -2016)

Note:

(i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.

(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: Three Hours

Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Answer **ALL** Questions

1. A good building stone should have a wear less than
   (A) 3%
   (B) 4%
   (C) 2%
   (D) 5%

2. The minimum concrete grade for general works of RCC in building construction
   (A) M10
   (B) M20
   (C) M15
   (D) M25

3. Steel reinforcement placed in cement concrete at suitable places to take up the
   (A) Compressive stress
   (B) Tensile stress
   (C) Shear stress
   (D) Volumentric stress

4. Tress which grows inward and fibrous mass as seen in longitudinal section are called as
   (A) Endogenous tree
   (B) Exogenous tree
   (C) Conifers
   (D) Deciduous

5. Shear stress is also called as
   (A) Volumentric stress
   (B) Direct stress
   (C) Lateral stress
   (D) Tangential stress

6. The centre of area of plane figure is known as
   (A) Centroid
   (B) Centre of gravity
   (C) Moment of inertia
   (D) Radius of gyration

7. Hooke's law is applicable for both
   (A) Tension and compression
   (B) Tension and shear
   (C) Compression and shear
   (D) Compression alone

8. Factor of safety for wood is
   (A) 20
   (B) 10
   (C) 5
   (D) 4

9. A beam supporting the brickwork over opening of door and window
   (A) Lintel
   (B) Coping
   (C) Parapet
   (D) Plinth

10. The fire resistance provided in type-I construction of building is
(A) 4
(B) 3
(C) 2
(D) 1

11. A continuous layer provided over the roof slab for protecting the roof from sunlight, rain, wind and snow.
(A) Weathering course
(B) Roof
(C) Damp proof course
(D) Plinth

12. The ultimate bearing capacity of soil is defined as the load carrying capacity of soil without occurance of
(A) Tensile failure
(B) Compression failure
(C) Shear failure
(D) Fatigue failure

13. The end support of the super structure of bridge is called
(A) Pier
(B) Wing wall
(C) Deck
(D) Abutment

14. Surveying carried out to determine different strata in the earth crust
(A) Geological survey
(B) Military survey
(C) Mine survey
(D) Engineering survey

15. The central paved width of road meant for vehicular traffic is called
(A) Carriage way
(B) Sight distance
(C) Shoulders
(D) Right of way

16. The protective barrier to enclose harbours and to keep the harbor water undisturbed
(A) Break water
(B) Wharf
(C) Transit shed
(D) Warehouse

17. Water which is chemically impure but unpolluted and free from toxic substances
(A) Wholesome water
(B) Pond water
(C) Safe water
(D) Lake water

18. As per IS: 10500-1983, the maximum permissible limits of turbidity
(A) 10 NTU
(B) 15 NTU
(C) 20 NTU
(D) 25 NTU

19. Dam constructed to store water during flood and release it at a safe rate is
(A) Storage dam
(B) Diversion dam
(C) Detention dam
(D) Rigid dam

20. The biochemical reaction take place in septic tank due to
(A) Aerobic bacteria
(B) Anaerobic bacteria
(C) Pathogenic bacteria
(D) Pseudomonas

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

21. Write a short note on Bogue's compound.

22. Define shear stress and shear strain with a neat sketch.

23. State parallel axis and perpendicular axis theorem with a neat sketch.

24. State the functions of a foundation.

25. What are the principles of surveying?

26. What are the functions of sleeper in permanent way?

27. Write the objective of water supply system.

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

28. a. Describe briefly on the properties of concrete and also mention the nominal mix ratio for different grade of concrete.

(OR)

b. What are the properties and types of cement?

29. a. Draw the stress-strain curve of mild steel and explain salient points in it.

(OR)

b. Determine the centre of gravity of a given T-section.
Flange = 100 ×10 mm
Web = 110 × 10 mm
Overall depth = 120 mm

30. a. Explain the components of building with neat sketch.

(OR)

b. Describe deep foundation and its type with a neat sketch.

31. a. Draw the cross section detail of roadway and explain in detail.

(OR)

b. Explain the components of harbor with a neat sketch.

32. a. Explain the component of septic tank with a neat sketch.

(OR)

b. What are the points to be considered in the selection of dam? Draw the cross section of gravity dam.

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