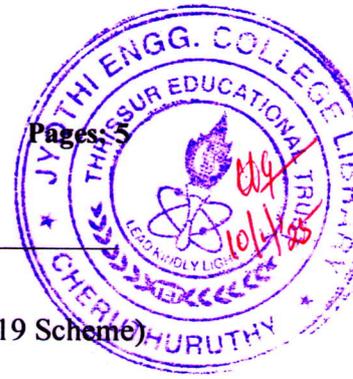


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S, FE) / S6 (PT) (S, FE) Examination December 2024 (2019 Scheme)



Course Code: CET 308

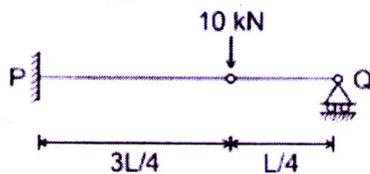
Course name: COMPREHENSIVE COURSE WORK

Max. Marks: 50

Duration: 1 Hour

- Instructions:**
- (1) Each question carries one mark. No negative marks for wrong answers
 - (2) Total number of questions: 50
 - (3) All questions are to be answered. Each question will be followed by 4 possible answers of which only ONE is correct.
 - (4) If more than one option is chosen, it will not be considered for valuation.

1. If equal and opposite forces applied to a body tend to elongate it, the stress so produced is called:
 - a) Tensile stress
 - b) Compressive stress
 - c) Tangential stress
 - d) Working stress
2. A 600 mm long circular rod with cross sectional area of 300 mm^2 is observed an increase in length by 0.4 mm, when subjected to 18 kN load. What is modulus of elasticity of the rod material?
 - a) 120 GPa
 - b) 110 GPa
 - c) 100 GPa
 - d) 90 GPa
3. Choose the physical quantity from the given options that has no dimension
 - a) Stress
 - b) Young's modulus
 - c) Strain
 - d) None of the above
4. For a cantilever beam with length 2m subjected to a concentrated load free end, bending moment will be zero at
 - a) $1/4^{\text{th}}$ from free end
 - b) Fixed end
 - c) Center of beam
 - d) Free end
5. A vertical load of 20 kN acts on a hinge located at a distance of $L/4$ from the roller support Q of a beam of length L.



The vertical reaction at support Q is

- a) 0.0 kN
 - b) 2.5 kN
 - c) 7.5 kN
 - d) 10.0 kN
6. Principal stress is the magnitude of _____ stress acting on the principal plane.
 - a) Normal stress
 - b) Shear stress
 - c) Both a and b
 - d) None of the above

7. An element is subjected to two equal and like stress ' σ ' on two mutually perpendicular planes. The shape of Mohr circle will be
 a) A point only b) A circle of radius 2σ c) A circle of radius σ d) A circle of radius $\sigma/2$
8. How do point loads and uniformly distributed loads are represented in SFD?
 a) Simple lines and curved lines b) Curved lines and inclined lines c) Simple lines and inclined lines d) Can't represent any more
9. What will be the ratio of Young's modulus to the modulus of rigidity of a material having Poisson's ratio 0.2?
 a) 3.75 b) 3.00 c) 1.5 d) 2.4
10. The section modulus of a rectangle with breadth b and depth d will be:
 a) $bd^3/6$ b) $bd^3/12$ c) $bd^2/6$ d) $bd^2/12$
11. If one litre of a fluid has a mass of 9.25 kg then its specific gravity is:
 a) 0.925 b) 9.25 c) 92.5 d) 1
12. What is the condition for neutral equilibrium of a floating body?
 a) Meta Centre is above centre of gravity of body b) Meta Centre is below centre of gravity of body c) Meta Centre is at the centre of gravity of body d) All of the above
13. When a block of ice floating on water in a container melts, the level of water in the container
 a) rises b) Remains the same c) First falls then rise d) None of the above
14. Principle of continuity is based on conservation of:
 a) Energy b) Mass c) Both 1 and 2 d) None of the above
15. Bernoulli's theorem is a consequence of conservation of:
 a) Energy b) Momentum c) Angular momentum d) mass
16. Bernoulli's equation is derived based on the following assumptions
 i. There is no loss of energy in a liquid flow and flow is uniform
 ii. The flow is rotational
 iii. Except gravity and pressure forces, no external force acts on liquid flow
 iv. The flow is viscous, incompressible flow
 a) (i) & (iii) b) (i), (ii) & (iii) c) (ii) & (iii) d) (i), (iii) & (iv)
17. The head loss at the inlet of the pipe is ____ times that at it's outlet.
 a) equal to b) Half c) Twice d) Four times
18. The sum of pressure head, kinetic head and datum head is called as
 a) Hydraulic gradient line b) Total energy line c) Total equations line d) Transmission line
19. Which one of the following is a major loss?
 a) frictional loss b) shock loss c) entry loss d) exit loss

- 20 Which one of the following is true for the most economical trapezoidal section?
 a) Half of the base width = one of the slopping side b) Half of the slopping side = total base width c) Total top width = twice of the one slopping side d) Total top width = one of the slopping side
- 21 Which of the following branch of surveying is used to find the elevations of given points with respect to given or assumed datum?
 a) Plane table surveying b) Traversing c) Contouring d) Levelling
- 22 Which of the following type of ranging is done if both ends of surveying lines are visible?
 a) Indirect b) Reciprocal c) Unable to do d) Direct
- 23 Determining points of strategic importance are called _____
 a) Traverse surveying b) Military surveying c) City surveying d) Topographic surveying
- 24 Which meridians are used to determine the relative positions of the lines in a small area?
 a) True Meridian b) Magnetic Meridian c) Arbitrary Meridian d) All meridians
- 25 What is the horizontal angle which it makes with the true meridian through one of the extremities of the line?
 a) True bearing b) Magnetic bearing c) Arbitrary bearing d) Dip
- 26 A theodolite can be used for
 a) Horizontal angle measurement b) Ranging a line c) Calculating vertical height of an object d) All of above
- 27 In which of the following areas, the usage of primary triangulation is done?
 a) Measuring fields b) Measuring built up lands c) Measuring earths figure d) Measuring unused lands
- 28 _____ is an error that under the same conditions will always be of the same size and sign.
 a) Accidental error b) Mistake c) Compensating error d) Systematic error
- 29 Which of the following indicates the correct set of the combination of total station?
 a) Theodolite, compass b) Theodolite, EDM c) Electronic theodolite, EDM d) EDM, GPS
- 30 Which of the following is not a principle of remote sensing?
 a) Interaction of energy with satellite b) Electromagnetic energy c) Electro-magnetic spectrum d) Interaction of energy with atmosphere
- 31 The ratio of volume of voids to volume of solids is known as
 a) Porosity b) Degree of saturation c) Void ratio d) Specific gravity
- 32 The ratio of plasticity index to flow index is called
 a) Liquidity index b) Consistency index c) Toughness index d) Shrinkage index

- 33 An arrangement composed of particles having an 'edge-to-edge' orientation is known as
 a) Dispersed b) Cohesive matrix c) Flocculent d) Honeycomb
- 34 The void ratios at the densest, loosest and natural states of a sand deposit are 0.2, 0.5, and 0.4 respectively. The relative density of the deposit is:
 a) 100 % b) 75 % c) 33.33 % d) 25 %
- 35 _____ apparatus is used to find the liquid limit of soil.
 a) Mohr b) Casagrande c) Otto d) Terzaghi
- 36 Lacustrine soils are the soils
 a) Deposited in lake beds b) Transported by glaciers c) Deposited in sea beds d) None of the above
- 37 In IS classification system, the symbol used for silt type of soil is
 a) G b) S c) M d) St
- 38 The pore water pressure in a capillary zone is
 a) Zero b) Positive c) Negative d) Very low
- 39 The rate of flow of water per unit cross sectional area of aquifer under a unit hydraulic gradient is known as
 a) Unconfined aquifer b) Confined aquifer c) Coefficient of permeability d) Coefficient of transmissibility
- 40 If the angle of internal friction (ϕ) = 30° for a soil, the angle of failure plane relative to major principle plane in a CD triaxial test will be:
 a) 60° b) 30° c) 45° d) 67.6°
- 41 Concrete in sea water or exposed directly along the sea coast, the use of which cement is advantageous under such conditions?
 a) Ordinary Portland cement b) High alumina cement c) Slag or pozzolana cement d) Quick setting cement
- 42 Vicat apparatus is used for
 a) Fineness test b) Consistency test c) Soundness test d) None of the above
- 43 The specific gravity of particles of ordinary Portland cement is about
 a) 3.15 b) 2.55 c) 2.65 d) 1
- 44 Which ratio of cement mortar is used for stone masonry?
 a) 1:6 b) 1:3 c) 1:8 d) 1:4
- 45 In _____ type of construction, the stones of irregular sizes are used.
 a) Rubble masonry b) Ashlar masonry c) Brick masonry d) Granite masonry
- 46 _____ is used to ensure that the thickness of plastering is uniform.
 a) Bull point b) Pivot point c) Bull mark d) Bench mark
- 47 Development of swellings on the finished plastered surface is known as _____
 a) Dots b) Blistering c) Dubbing d) Grinning

- 48 What is disuniting of Structure?
a) dividing into panels b) organizing the panels c) erecting the panels d) making into smaller members
- 49 As per IS 1343-1980, what is the minimum grade of concrete required for pre-tensioned prestressed concrete?
a) M 25 b) M 30 c) M 35 d) M 40
- 50 PERT is used in the preparation of:
a) Budgeting b) Scheduling c) Evaluating d) Finalizing