

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (R,S) (FT/WP/PT) Examinations April 2026 (2019 Scheme)

Course Code: CET308

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. The energy stored in a material within elastic limit when it is under strain is called
 - a) Impact
 - b) Shock resistance
 - c) Resilience
 - d) Elasticity
2. Modulus of rigidity is defined as the ratio of
 - a) Shear Stress to Shear Strain
 - b) Longitudinal stress to Lateral Strain
 - c) Stress to strain
 - d) Volumetric stress to Volumetric Strain
3. When a beam is loaded with concentrated load then the bending moment diagram will be
 - a) Horizontal Straight Line
 - b) Vertical Straight Line
 - c) Inclined Line
 - d) Parabolic curve
4. For a 2D stress system, principal plane occurs where
 - a) Shear stress is maximum
 - b) Normal stress is zero
 - c) Shear stress is zero
 - d) Normal stress is maximum
5. In pure bending, the strain distribution across the beam section is
 - a) Parabolic
 - b) Uniform
 - c) Circular
 - d) Linear
6. A cantilever beam loaded at free end shows maximum bending moment at:
 - a) Free End
 - b) Middle of the beam
 - c) Fixed end
 - d) None
7. 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) $bd^2/12$
8. If the Poisson's ratio of a material is 0.35, what will be the ratio of Young's modulus (E) to modulus of rigidity (G)?
 - a) 2
 - b) 2.7
 - c) 3
 - d) 1
9. For an elastic material the relation between E, G, and K is:
 - a) $E=9KG/(3K+G)$
 - b) $E=3KG/(K+G)$
 - c) $E=KG$
 - d) None

10. When two unlike principal stresses of magnitude p are acting, then Mohr's Circle's radius is given by
 - a) p
 - b) $p/2$
 - c) $p/4$
 - d) None of these
 11. Manometer is used to measure
 - a) Velocity of Liquid
 - b) Atmospheric Pressure
 - c) Pressure in pipes and channels
 - d) Pressure in venturi meter
 12. When a body floating in a liquid is given a small angular displacement, it start oscillating about a point known as
 - a) Centre of pressure
 - b) Centre of gravity
 - c) Centre of buoyancy
 - d) metacentre
 13. Bernoulli's theorem deals with the principle of conservation of
 - a) Energy
 - b) mass
 - c) force
 - d) momentum
 14. Flow in a pipe is laminar if the Reynold's number is
 - a) Less than 2000
 - b) Between 2000 and 4000
 - c) Between 4000 and 6000
 - d) Equal to 10000
 15. The most economical section of a trapezoidal channel is one which has hydraulic mean depth equal to
 - a) $\frac{1}{2}$ depth
 - b) $\frac{1}{2}$ sloping side
 - c) $\frac{1}{2}$ width
 - d) $\frac{1}{2}$ (depth+width)
 16. The head loss at the exit of a pipe is equal to:
 - a) Velocity head
 - b)) Pressure head
 - c) Datum head
 - d) Friction head
 17. Mach Number is square root of the ratio between inertia force and the
 - a) Viscous force
 - b) Pressure force
 - c) Elastic force
 - d) Surface tension force
 18. Critical depth of water flowing through a rectangular channel of width 5m when discharge is $12.5 \text{ m}^3/\text{s}$ is
 - a) $(2.25)^{1/2} \text{ m}$
 - b) $(16)^{1/2} \text{ m}$
 - c) $(0.46)^{1/3} \text{ m}$
 - d) $(0.64)^{1/3} \text{ m}$
 19. Angular measurements in surveying are commonly made using
 - a) Tape
 - b) Compass
 - c) Chain
 - d) Theodolite
 20. Local attraction in compass surveying is caused by
 - a) Earth Magnetic field
 - b) Metallic objects near the compass
 - c) Declination
 - d) Latitude
 21. Weight of an observation is inversely proportional to
 - a) Value of observation
 - b) Accuracy
 - c) Variance
 - d) Precision
 22. Correction for slope in a chain of length (l) with a difference of height between its ends (h) is given by
 - a) h/l
 - b) When
 - c) $h^2/2l$
 - d) $h/2l$
 23. When the meridian of a place changes with time, then this meridian will be
 - a) Arbitrary
 - b) Magnetic
 - c) True
 - d) Grid

- 24 At the equator the amount of dip is
 a) 0 Degree b) 45 Degree c) 60 Degree d) 90 Degree
- 25 A series of closed contour lines on the map with lower to higher value inside then represents a
 a) Hill b) Ridge c) Depression d) Steep slope
- 26 A contour interval indicates the ----- distance between any two consecutive contours
 a) Vertical b) Horizontal c) Graphical d) Gradient
- 27 The most commonly used method for adjustment of traverse is
 a) Bowditch rule b) Simpson's rule c) Trapezoidal rule d) Prismoidal rule
- 28 EDM stands for
 a) Electronic Distance Measurement b) Electrical Distance Meter c) Electromagnetic Distance Measurement d) Electronic Data Model
- 29 The maximum number of omitted measurements that can be calculated from latitudes and departures of a closed traverse is
 a) One b) Two c) Three d) four
- 30 The ratio of volume of voids to the total volume of the given soil mass is known as
 a) porosity b) Void ratio c) Specific Gravity d) Water Content
- 31 The Particle diameter corresponding to 20 percent finer on the grain size curve is called
 a) D_{120} b) D_{80} c) D_{20} d) D_{200}
- 32 Which of the following indicates the most error free method of determining water content in a soil sample?
 a) Oven drying method b) Sand Bath Method c) Alcohol method d) Calcium carbide method
- 33 When the Plasticity index of soil is zero, the soil is
 a) Clay b) Slit c) Sand d) Silty Sand
- 34 The minimum Moisture Content at which the soil just begins to crumble when rolled in to 3 mm threads is known as
 a) Liquid limit b) Plastic limit c) Shrinkage limit d) Permeability limit
- 35 According to Darcy's law, the discharge through a soil mass is directly proportional to
 a) Area of flow b) Hydraulic gradient c) Void ratio d) Degree of saturation
- 36 The time required for consolidation settlement is governed mainly by
 a) Depth of soil layer b) Coefficient of consolidation c) Applied load d) Void ratio
- 37 According to Mohr-Coulomb failure theory, shear strength is given by
 a) $\tau = \sigma + c$ b) $\tau = c + \sigma \tan \phi$ c) $\tau = \sigma \tan \phi$ d) $\tau = c \tan \phi$
- 38 The vane shear test is mainly used to determine the shear strength of
 a) Dry sand b) Soft clay c) Gravel d) Hard rock

- 39 Plasticity Index is equal to
 a) Liquid limit - Plastic limit b) Liquid limit - Shrinkage limit c) Plastic limit - Liquid Limit d) Plastic limit - Shrinkage limit
- 40 GPS is based on
 a) Trilateration b) Resection c) Trisection d) Traversing
- 41 The maximum percentage of ingredient in cement is
 a) Lime b) Magnesium oxide c) Aluminium d) silica
- 42 Vicat's apparatus is used to determine the
 a) Initial setting of cement b) Final setting of cement c) Normal Consistency of cement d) All of the Above
- 43 The residue on IS Sieve No 9 of ordinary Portland cement should not exceed
 a) 5% b) 10% c) 20% d) 30%
- 44 The compound which is responsible for early strength gain in cement is ----
 a) C_2S b) C_3S c) C_3A d) C_4AF
- 45 Bleeding in concrete refers to
 a) Loss of cement b) Upward movement of water c) Settlement of aggregates d) Formation of cracks
- 46 Creep in concrete increases with
 a) Decrease in stress b) Increase in age at loading c) Increase in sustained load d) Decrease in temperature
- 47 The water-cement ratio law was proposed by
 a) Buchanan b) Feret c) Powers d) Duff Abrams
- 48 Which contract is commonly used for highway and infrastructure projects?
 a) Labour contract b) Lump sum contract c) BOT contract d) Piece work contract
- 49 The longest path in a network is called
 a) Shortest path b) Critical path c) Dummy path d) Float path
- 50 In PERT, activity durations are assumed to follow
 a) Normal distribution b) Uniform distribution c) Beta distribution d) Poisson distribution
