

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) Silt 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
