

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY LONERE
Mid Semester Examination – October 2018

Course: B. Tech. in Civil Engineering (SY)

Subject Name: Surveying – I

Max Marks: 20

Date: 11/10/18

Semester III

Subject Code: CV304

Duration: 1 hr

Instruction to the students:

- (a) Write brief and to-the-point answers.
- (b) Draw neat and labelled diagrams where necessary
- (c) The answers to the parts of a question should be together.

Marks

1. **Select the right option from the following questions.**

6

A. In surveying, the first principle requires:

- (a) Two known points
- (b) One known point and one direction
- (c) Two different directions
- (d) Both a and b.

B. The following statements are given

- (i) Survey stations must be manually visible.
- (ii) Survey lines can run through undulating ground
- (iii) The surveying framework can have one or two baselines
- (iv) The baselines should form the letter V amongst them.

Out of the above, the true statements are

- (a) (i) and (ii)
- (b) (iii) and (iv)
- (c) (iv) only
- (d) (iii) only

C. The cross staff is useful when: (i) one station is fixed and the other movable, (ii) both stations are fixed, (iii) both stations are movable, (iv) the point of perpendicular dropping / erection is known. Out of these, the true statement(s) are:

- (a) (i) and (ii)
- (b) (iii) and (iv)
- (c) (i) and (iv)
- (d) (ii) and (iii)

D. Plane tabling is a method of surveying which uses

- (i) Alidade
- (ii) Field book
- (iii) Plane table
- (iv) Recording

Out of the above, the correct options are

- (a) (i) and (iii)
- (b) (i) and (iv)
- (c) (ii) and (iii)
- (d) (iii) and (iv)

E. Intersection is a method in plane tabling survey, which is used when

- (i) Distance between point and the instrument station cannot be measured accurately

- (ii) Base station coordinates are known
- (iii) Distance between base station can be measured
- (iv) Mapping points are known

The true statements are

- (a) All the statements
- (b) (ii) and (iii)
- (c) (i) and (iv)
- (d) (i) and (iii)

F. For a polygon with n sides, the total sum of internal angles is

- (a) $(n + 2) \times 90$
- (b) $(n - 2) \times 90$
- (c) $2 \times (n + 2) \times 90$
- (d) $2 \times (n - 2) \times 90$

2. **Solve any two of the following:**

3 × 2

A. The following bearings are measured on a closed compass traverse

Line	F. B.	B. B.
AB	80° 05'	259° 05'
BC	120° 25'	301° 45'
CD	170° 50'	350° 50'
DE	230° 15'	49° 25'
EA	310° 15'	130° 20'

Compute the interior angles and then correct them for observational errors. Assuming the observed bearing of line CD to be correct, adjust the bearing of the remaining sides.

B. Write a short note on the various errors in compass surveying.

C. Write a short note on local attraction.

3. **Answer any one of the following questions**

8

- A. Write a descriptive note on the basic problems in chaining, and the methods of solving them.
- B. Write a descriptive note on how to traverse with a plane table.

*** END ***

Instructions to the Students:

1. Assume suitable data wherever necessary and State it clearly.
2. Figures to Right Indicate full Marks.
3. L indicates Low Level, M indicates Medium Level & H indicates High Level.

QUESTIONS

Marks

Q.1 Attempt following Questions (6 Marks)

6

1. Define Strain
2. Define Poissons ratio
3. Define Longitudinal Stress
4. Define Pure Torsion
5. Define Strain Rosette
6. Define Principal Stress

Q.2 Solve Any TWO of the following

6

- (A) Explain the Stress Strain Curve for Mild Steel Bar.
- (B) The pipe of 400 mm internal diameter and 100 mm thickness contains a fluid at pressure of 8 N/mm². Find the Maximum and Minimum Hoops Stress across the Section. Also Sketch the Radial and Pressure Distribution and Hoop stress distribution across the Section.
- (C) In a tensile test, a piece 25 mm in diameter, 200 mm gauge length is stretched 0.0975 mm under a pull of 50 kN. In a Torsion test, the same rod is twisted 0.025 radians over a length of 200 mm, when the torque of 400 Nm was applied. Evaluate the Poissons ratio and three Elastic Moduli for the material.

Marks

6

Q.3 Solve ANY ONE of the following.

8

- (A) Derive the Torsion Formula.
 - (B) A steel Plate 15 mm x 30 mm is testd by pulling it with a tensile force of 45 kN, the line of action of the load being 35 mm from one edge. An extensometer set along the line of the action of the load shows the extension of 0.055 mm over a gauge length of 125 mm. Determine the extreme stresses for the Plate section and the Young's Modulus of Steel.
- *** End ***

- (C) In a tensile test, a piece 25 mm in diameter, 200 mm gauge length is stretched 0.0975 mm under a pull of 50 kN. In a Torsion test, the same rod is twisted 0.025 radians over a length of 200 mm, when the torque of 400 Nm was applied. Evaluate the Poissons ratio and three Elastic Moduli for the material.

Marks

6

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in Civil Engineering

Sem: III

40

Subject Name: Hydraulics I

Subject Code: CV 303

40

Max Marks:20

Date:- 10/10/2018

Duration:- 1 Hr.

40

Instructions to the Students:

1. All questions are compulsory.
2. Assume suitable data if necessary.

20

Marks

Q.1 Attempt following Questions

6

1. Which one of the following is not a unit of dynamic viscosity?

- a) Pa-s b) N-s/m² c) Poise d) Stokes

2. Which one of the following is the correct relation between compressibility β and Bulk Modulus k

- a) $\beta = k$ b) $\beta = 1/k$ c) $\beta = 2k$ d) $\beta = k/2$

3. 15 bar equals to _____ Pascals.

- a) 10^5 Pa b) 1.5×10^6 Pa c) 100 Pa d) 1000 Pa

4. Which one of the following is the unit of pressure?

- a) N b) N/m c) N/m² d) N/m³

5. The velocity of a point in a flow is

- a) along the streamline b) tangent to the streamline c) along the pathline
d) tangent to the pathline

6. The velocity vector in a fluid is given $V=5x^4+3y^2+2z$ (in metre/sec). What is the acceleration of it at point (1,3,4) ?

- a) 40 m/s² b) 20 m/s² c) 60 m/s² d) 80 m/s²

Q.2 Solve Any Two of the following.

3 X 2

(A) Define and explain following terms

- i) Viscosity ii) surface tension iii) capillarity

(B) List the various pressure measuring devices and explain simple U-tube manometer.

(C) A 60 cm diameter pipe carries petrol ($G = 0.7$) at velocity of 1.5 m/s. At another section, the diameter is 40 cm. Find the velocity at this section and also mass rate of flow of oil.

Q.3 Solve Any One of the following.

8

(A) Derive metacentric height by analytical method.

(B) Derive Continuity equation in Cartesian co-ordinates.

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course : B. Tech in CIVIL ENGINEERING

Semster : III

Subject Name: Engineering Geology

Subject Code: CV306

Max Marks: 20 Date: 13th October 2018

Time: 3 pm to 4 pm Duration: 1 Hour

Instructions to the Students:

1. Assume suitable data wherever necessary and State it clearly.
2. Figures to Right Indicate full Marks.
3. L indicate Low Level, M indicates Medium Level & H indicates High Level.

QUESTIONS

Marks

Q.1 Attempt following Questions (6 Marks)

6

1) An instrument which is used to measure earth quake waves is known as :

- (a) Thermograph (b) Hygrograph (c) Seismograph (d) Anemometer

2) Deccan trap mountains are -----

a) depositional mountains (b) folded mountains (c) Block mountains

(d) Erosional mountains

3. Dendritic Drainage is related to

- a) Glacier (b) Wind (c) River (d) Underground water

4. Conrad discontinuity is present in _____ layer of the earth

- (a) Crust (b) Upper Mantle (c) Lower Mantle (d) Core

5. Grit is a _____ type of Rock.

- (a) Rudaceous rock (b) Arenaceous Rock (c) Argillaceous (d) Residual Rock

6. Bauxite Exhibits _____ type of Texture.

- (a) Granitic (b) Aphanitic (c) Peasolitic (d) Clastic

Q.2 Solve Any TWO of the following.

6

- (A) What is sedimentary rock? Explain Chemical deposits
(B) Define Unconformity and Explain its types
(C) Describe in detail Agents of Metamorphism

Q.3 Solve ANY ONE of the following.

8

- (A) What is Volcano? Describe classification of Volcano on the basis of mode of
Erruption
(B) Define Fault and Explain in detail various types of faults

Course: B. Tech in Civil Engineering

Sem: III

Subject Name: Building Construction

Subject Code: CV305

Max Marks: 20

Date: -12/10/18

Duration: - 1 Hr.

Instructions to the Students:

1. Illustrate your answers with neat sketches, diagrams etc. where ever necessary.
2. Necessary data is given in the respective questions. If such data is not given, it means that the knowledge of that data is a part of the examination.
3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Marks
6

Q. 1 Select appropriate answer for the given multiple choice questions.

1. M10 grade of concrete approximates

- a) 1 : 3 : 6 mix b) 1 : 1 : 2 mix c) 1 : 2 : 4 mix d) 1 : 1.5 : 3 mix

2. Separation of coarse aggregates from mortar during transportation, is known

- a) Bleeding b) Creeping c) Segregation d) Shrinkage

3. Gypsum is added for

- a) colour b) strength c) controlling setting time d) none of these.

4. _____ is the clear vertical distance between the highest point on the intrados and springing line.

- a) Span b) Rise c) Arcade d) Center

5. Ashlar masonry uses:

- a) Dimension stones b) Polygonal stones c) Quarry dressed stones d) Rough stones

6. At present, the lintels of _____ are widely used to span the openings for doors, Windows, etc. in a structure.

- a) Timber b) Wood c) RCC d) Cement

3 X 2

Q.2 Solve Any Two of the following.

(A) Write a short note on chemical admixture

(B) Define the following terms

Header, Stretcher, Bond, Quoin, Closer, Through stone, Face, Back

(C) Classify various types of lintels and explain any one detail

Q. 3 Solve Any One of the following.

(A) Draw a neat sketch of an arch and explain all technical terms of arch

(B) Differentiate and compare English bond, Flemish bond and Double Flemish bond with sketch

8

*** End ***