



Roll No.

**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING**

**TEST - 1**

**Even Semester:** 2018-19

**Course Code:** CIV 101

**Course Name:** Elements of Civil Engineering

**Programme & Sem:** B.Tech (Physics Cycle) & II Sem

**Date:** 06 March 2019

**Time:** 1 Hour

**Max Marks:** 40

**Weightage:** 20%

**Instructions:**

(i) Read the question properly and answer accordingly.

**Part A**

Answer **all** the Questions. **Each** question carries **four** marks.

(3Qx4M=12)

1. Write the objectives of foundation.
2. Write the objectives of water treatment.
3. Write the advantages and disadvantages of Irrigation.

**Part B**

Answer **both** the Questions. **Each** question carries **eight** marks.

(2Qx8M=16)

4. Explain combined and mat foundation with neat sketch.
5. Explain any two types of bridges in detail with neat sketch.

**Part C**

Answer the Question. Question carries **twelve** marks.

(1Qx12M=12)

6. Write short notes on i) purposes of dam ii) Functions of water treatment units iii) Effects of water pollution



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**PRESIDENCY UNIVERSITY  
BENGALURU  
SCHOOL OF ENGINEERING**

**TEST - 2**

**Even Semester:** 2018-19

**Date:** 15 April 2019

**Course Code:** CIV 101

**Time:** 1 Hour

**Course Name:** Elements of Civil Engineering

**Max Marks:** 40

**Program & Sem:** B.Tech. & II Sem (Physics Cycle)

**Weightage:** 20%

**Instructions:**

- (i) **Answer all the questions**
- (ii) **The question paper consists of three parts**
- (iii) **Read all the questions thoroughly and carefully before answering**
- (iv) **Use of Scientific Non-programmable calculator is permitted**

**Part A**

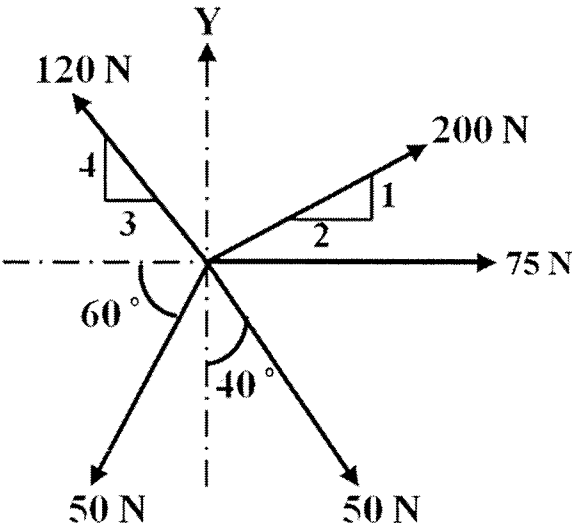
Answer **all** the Questions. **Each** question carries **four** marks. (3Qx4M=12)

1. Bring out the main differences between flexible pavement and rigid pavement.
2. List out the objectives of Architecture.
3. Write short notes on Remote Sensing & GIS.

**Part B**

Answer **both** the Questions. **Each** question carries **six** marks. (2Qx6M=12)

4. Compute the resultant of the forces [Refer Fig. 4].



**Fig. 4**

5. Define Force. List and explain the characteristics of a force with the help of an example.

### Part C

Answer **both** the Questions. **Each** question carries **eight** marks.

(2Qx8M=16)

6. Two locomotives moving on opposite banks of a canal can pull a vessel parallel to the banks by means of two ropes as shown in Fig. 6. The force in the ropes is 20kN and 24kN, while the total angle between them is  $60^\circ$ . Find the resultant pull on the vessel and the angle  $\alpha$  &  $\beta$ .

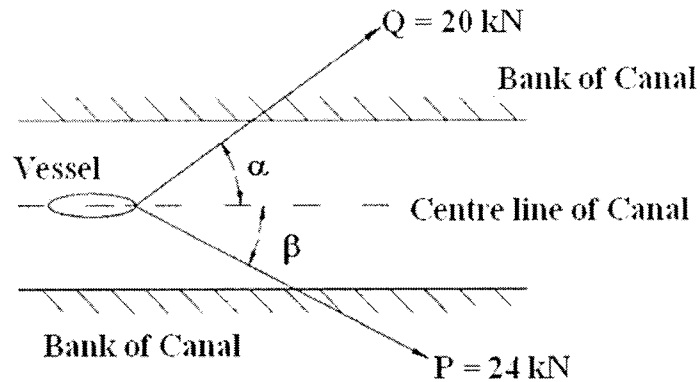


Fig. 6

7. List out the various equipment used in surveying with the purpose of each.



PRESIDENCY UNIVERSITY  
BENGALURU

SCHOOL OF ENGINEERING

SUMMER TERM/ MAKE-UP END TERM EXAMINATION

Semester: Summer Term 2019

Date: 25 July 2019

Course Code: CIV 101

Time: 2 Hours

Course Name: Elements of Civil Engineering

Max Marks: 80

Program & Sem: B.Tech (ODD Sem) (2017&2018 Batch)

Weightage: 40%

**Instructions:**

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

**Part A**

Answer **both** the Questions. **Each** question carries **ten** marks (2Qx10M=20)

1. Explain the types of supports with neat sketches.
2. Describe the types of beam with neat sketches

**Part B**

Answer **both** the Questions. **Each** question carries **fifteen** marks. (2Qx15M=30)

3. State and verify the Varignon's Theorem.
4. Find the support reactions at A and B for the beam shown in figure 4.1.

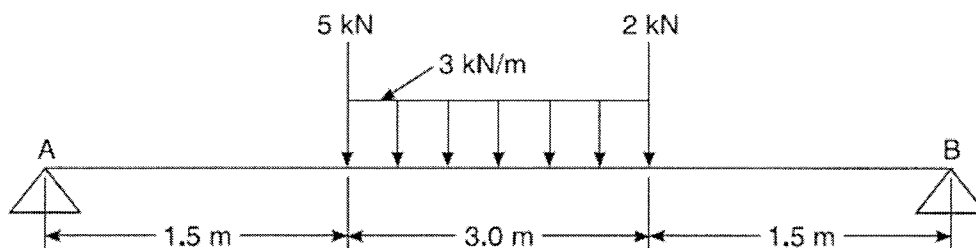


Figure 4.1

**Part C**

Answer **both** the Questions. **Each** question carries **fifteen** marks. (2Qx15M=30)

5. Two cables are connected at A and B as shown in Figure 5.1. A force of 30 kN is applied at C. Determine the forces in the cables CA and CB.

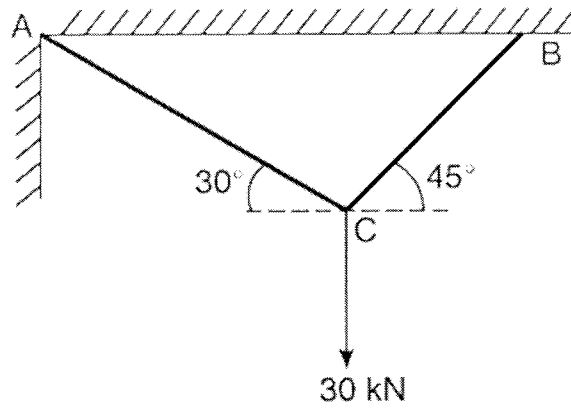


Figure 5.1

6. A sphere weighing  $100\text{ N}$  is fitted in a right angled notch as shown in figure 6.1. If all the contact surfaces are smooth, determine the reaction at contact surfaces.

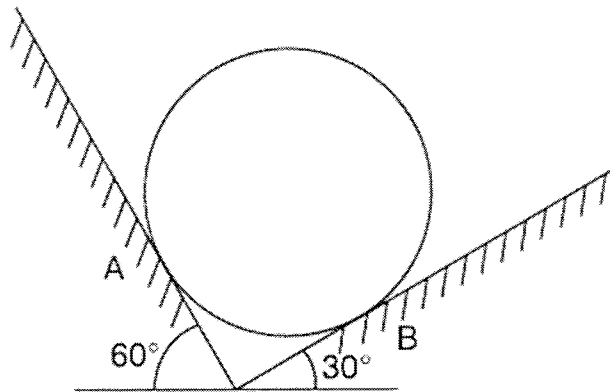


Figure 6.1



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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING**

**SUMMER TERM / MAKE UP END TERM EXAMINATION**

**Semester:** Summer Term 2019

**Date:** 25 July 2019

**Course Code:** CIV 101

**Time:** 3 Hours

**Course Name:** Elements of Civil Engineering

**Max Marks:** 80

**Program & Sem:** B.Tech & II Sem (EVEN) (2018 Batch)

**Weightage:** 40%

**Instructions:**

- (i) Read the question properly and answer accordingly.
- (ii) The question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

**Part A**

Answer **all** the Questions.

(20 Marks)

1. The question consists of **Five** multiple choice questions. **Each** MCQ carries **One** marks.  
Choose **ONLY ONE** appropriate choice. **(5Qx1M=5 Marks)**
- i) The part of civil engineering which deals with design of beams, slabs, columns etc. is
    - a) Transportation engineering
    - b) Structural Engineering
    - c) Geotechnical Engineering
    - d) Water supply Engineering
  - ii) River flood controlling can be done by constructing
    - a) Bridge
    - b) Tunnel
    - c) Dam
    - d) Harbour
  - iii) Kerbs are the components of
    - a) Roads
    - b) Bridges
    - c) Building
    - d) Dam
  - iv) Highways which are superior to National Highways and are provided wherever volume of traffic is very high are
    - a) State Highways
    - b) High Volume roads
    - c) Airways
    - d) Expressways
  - v) Surveying deals with
    - a) Sub soil exploration
    - b) Estimation of quantity of surface water
    - c) Determination of correct distance between objects or stations
    - d) design of super structure
2. The question consists of **Five** multiple choice questions. **Each** MCQ carries **Two** marks.  
Choose **ONLY ONE** appropriate choice. **(5Qx2M=10M)**
- i) Two forces acting at an angle of  $120^\circ$ . The bigger force is 40N and the resultant is perpendicular to smaller force. The smaller force is
    - a) 20N
    - b) 40N
    - c) 80 N
    - d) None of these

- ii) Two like parallel forces are acting at a distance of 24mm apart and their resultant is 20kN. If the line of action of resultant is 6mm from any given force, then two forces are
- a) 15N and 5N    b) 20N and 5N    c) 15N and 15N    d) None of these
- iii) A beam AB of length 4m supports 4kN from left support at a distance of 3m. The reactions in supports A and B respectively are
- a) 3 & 1    b) 3.5 & 0.5    c) 2 & 2    d) 1&3
- iv) Two forces equal in magnitude act at a point. The angle between the lines of action of these two forces is  $60^\circ$ . If the resultant of these two forces is 50N, the magnitude of the force is
- a) 25.88 N    b) 50 N    c) 28.87 N    d) 25 N
- v) The reaction at the surface of the contact of a sphere is
- a) parallel to surface    b) perpendicular to surface    c) Inclined to surface    d) None of these

**3. Match the following**

**(5 Marks)**

**Group – I**

**Group -II**

- A) Geotechnical Engineering
- B) Compass
- C) Mat foundation
- D) Infiltration gallery
- E) Sleepers

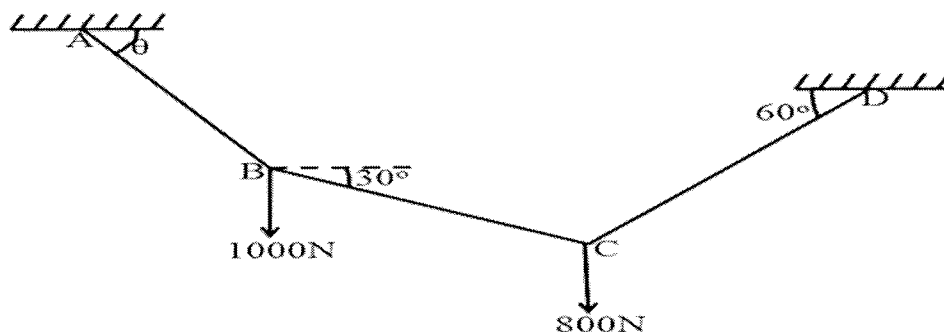
- i) Measurement of angles
- ii) Component of Dam structure
- iii) Component of railway track
- iv) Deep foundation
- v) Study of soil

**Part B**

Answer **all** the Questions. **Each** question carries **ten** marks.

**(4Qx10M=40M)**

4. State and Prove Varignon's theorem of moments
5. Write short notes on i) Lami's theorem and ii) couple and its properties.
6. Compute tensions in the strings AB, BC and CD as shown in Fig.1



**Fig.1 (Q6)**

7. Find the reactions for the beam shown in fig.2

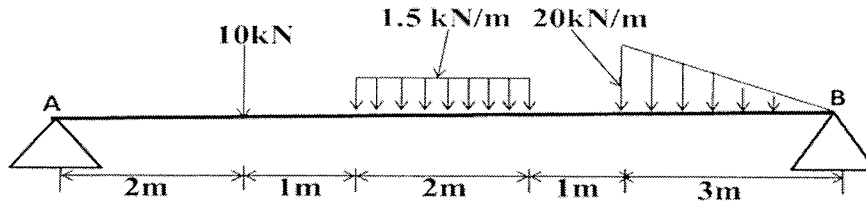


Fig.2 (Q7)

Part C

Answer **both** the Questions. **Each** question carries **ten** marks. (2Qx10M=20M)

8. Explain different types of supports with neat sketch indicating the support reactions.

9. A Rigid plate ABCD is subjected to forces as shown in fig.3. Compute the magnitude, direction and line of action of the resultant of the system and reference to the point 'A'.

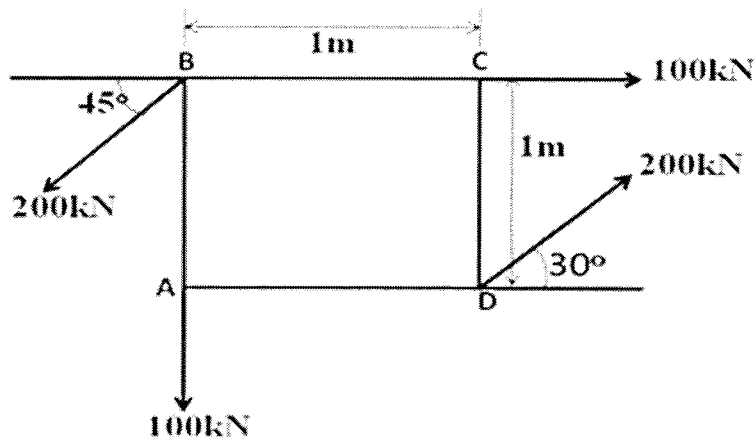


Fig.3 (Q9)







PRESIDENCY UNIVERSITY  
BENGALURU

SCHOOL OF ENGINEERING  
END TERM FINAL EXAMINATION

Even Semester: 2018-19

Course Code: CIV 101

Course Name: Elements of Civil Engineering

Program & Sem: B. Tech & II (Physics Cycle)

Date: 22 May 2019

Time: 3 Hours

Max Marks: 80

Weightage: 40%

**Instructions:**

- (i) Read the question properly and answer accordingly.
- (ii) The question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

**Part A**

Answer **all** the Questions.

(20 Marks)

1. The question consists of **five** multiple choice questions. **Each** MCQ carries **one** mark.  
Choose **ONLY ONE** appropriate choice. (5Qx1M=5M)
  - (i) In chain surveying field work is limited to
    - a) Linear measurement b) Angular measurement c) Both a & b d) None of them
  - (ii) Which of the following is a deep foundation?
    - a) Mat foundation b) Pile foundation c) Isolated footing d) Combined foundation
  - (iii) The type of contract where contractor agrees to perform specified job for a fixed price is
    - a) Unit price contract b) Lump sum contract c) Cost plus contract d) None
  - (iv) Transverse slope provided to the road to drain off surface water is
    - a) Kerb b) Shoulder c) Camber d) Divider
  - (v) The clear minimum horizontal distance between the inner faces of the two rails forming a track is known as
    - a) Sleeper b) Ballast c) Formation d) Gauge
2. The question consists of **five** multiple choice questions. **Each** MCQ carries **two** marks.  
Choose **ONLY ONE** appropriate choice. (5Qx2M=10M)
  - (i) The resultant of two equal forces P making an angle  $\theta=90^\circ$  is given by
    - a) 2P b)  $\sqrt{2}P$  c)  $\sqrt{2} P$  d) 4p
  - (ii) A door hinge is about 1.5 m away from handle, and a boy applies a force of 4N. Moment of force will be
    - a) 6Nm b) 2.66 Nm c) 5.5 Nm d) 2.5 Nm

(iii) What is the support reaction at A in the Fig 1?

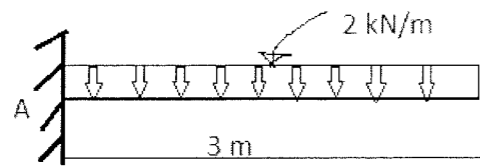


Fig 1

- a) 6 kN                      b) 3 kN                      c) 2 kN                      d) 4 kN

(iv) In Fig 2, the support reaction at A will be

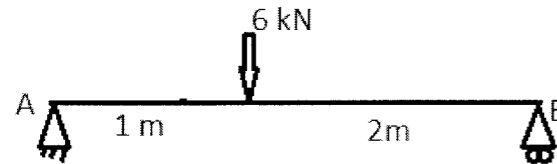


Fig 2

- a) 2 kN                      b) 3 kN                      c) 6 kN                      d) 4 kN

(v) According to principle of transmissibility of forces, the effect of a force upon a body is

1. Maximum when it acts at the center of gravity of a body
2. Different at different points in its line of action
3. The same at every point in its line of action
4. Minimum when it acts at the C.G. of the body

3. Match the following-

**Group - I**

- A) Turbidity
- B) Odour and Taste
- C) Colour
- D) Floating matter
- E) Hardness

**Group -II**

- P) Tintometer
- Q) Coagulation
- R) Softening
- S) Nephelometer
- T) Osmoscope
- U) Screening

(5Qx1M=5M)

**Part B**

Answer **all** the Questions. **Each** question carries **ten** marks.

(4Qx10M=40)

4. State and prove Varignon's theorem.
5. Four forces act on a 700 mm x 375 mm plate as shown in Fig 3. (a) Find the resultant of these forces and (b) locate the point where the line of action of the resultant intersects the edge AB of the plate.

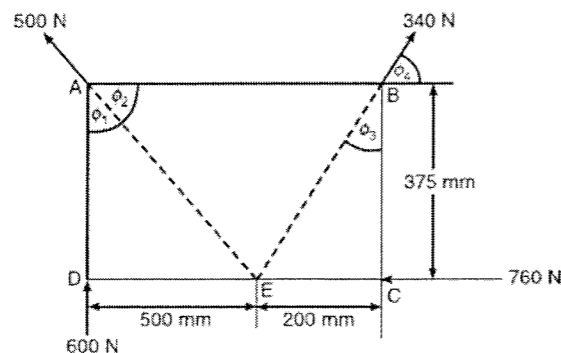


Fig 3

6. The system of connected flexible cables shown in Fig. 4 is supporting 2 loads of 400 N and 500 N at points B and D, respectively. Determine the tensions in the various segments of the cable.

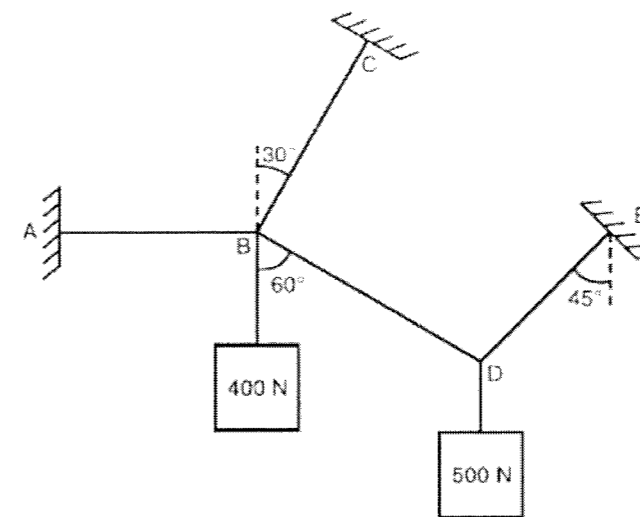


Fig 4

7. A horizontal shaft with inner clearance of 1000 mm carries two spheres of radius 350 mm and 250 mm as shown in Fig 5. The weights are 600 N and 500 N respectively. Find the reactions at all the points of contact.

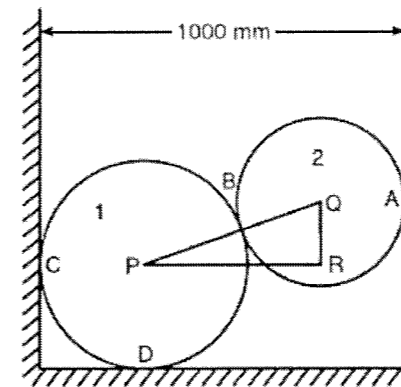


Fig 5

**Part C**

Answer **both** the Question. **Each** question carries **ten** marks.

(2Qx10M=20M)

8. Determine the reactions at A and E for the beam shown in Fig 6.

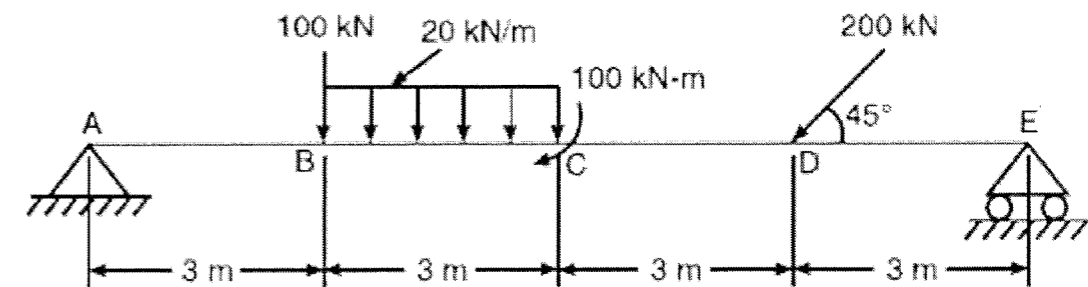


Fig 6

9. Explain the types of beams with a neat diagram.