

Roll No.

3701

B. Tech. 8th Sem. (Civil Engineering)

Examination – May, 2026

ESTIMATION, COSTING AND VALUATION

Paper : PCC-CE-402G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) Differentiate between Revised & Supplementary Estimate. $2.5 \times 6 = 15$
 - (b) Mention the units of measurement for Steel reinforcement, plastering, flooring and painting.
 - (c) Write in detail the factors affecting schedule of rates. Write down general specification of foundation.
 - (d) Justify the objective of specification.
 - (e) Illustrate, what are the information should a contract document contain.
 - (f) Write out the specification for second class Brickwork.

3701-1150-(P-4)(Q-9)(26)

P. T. O.

SECTION - A

2. (a) Describe long wall and short wall method. 7.5
(b) Calculate the quantity of earthwork for the construction of an approach road length = 1 km, width of formation = 10m, Height of embankment = 60 cm, side slope = 1 : 2. 7.5
3. The Plan and sectional elevation of the building are given in Fig. 1. Find the Estimate the quantities for the following items of works. (i) Earthwork in Excavation (ii) Plain Cement Concrete for Foundation (iii) Ist class Brickwork for foundation (iv) Concrete for roof slab (thickness of slab = 100 mm). 15

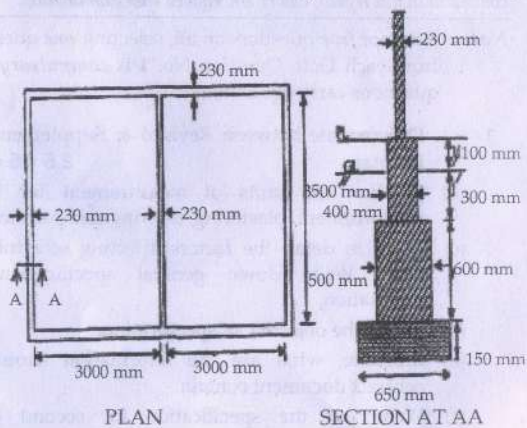


Fig. 1

3701-1150-(P-4)(Q-9)(26)

(2)

SECTION - B

4. Describe the detailed specification of various items of works for the following (i) RCC (ii) Color washing (iii) Brick I Class (iv) Plastering cement mortar or lime mortar. 15
5. Explain the characteristics, advantages, and limitations of traditional building materials. Compare them with modular building materials used in modern construction. 15

SECTION - C

6. Prepare a rate analysis for brick masonry work for the masonry tank in fig.2 Assume the required data for I class brickwork with cement mortar 1 : 6. 15

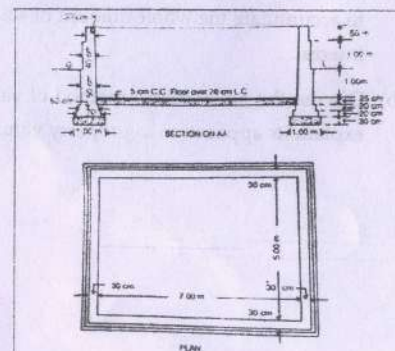


Fig. 2

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(3)

P. T. O.

7. Describe the structure and importance of a Measurement Book (MB). Explain the rules to be followed while recording measurements in an MB. 15

SECTION - D

8. (a) Define Earnest Money Deposit (EMD), Security Money and Retention Money. Explain their purpose in construction contracts. 7.5
- (b) Describe the different forms of construction contracts used in civil engineering projects. 7.5
9. (a) A pumping set with a motor has been installed in a building at a cost Rs.2500.00. Assuming the life of the pump as 15 years, workout the amount of annual installment of sinking fund to be deposited to accumulate the whole amount of 4% compound interest. 7.5
- (b) Discuss the rental return method of valuation and explain its application in property valuation. 7.5

Roll No.

3704

**B. Tech. 8th Semester (Civil Engineering)
Examination – May, 2026**

GEOTECHNOLOGY

Paper : PEC-CEEL-408G

Time : Three hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section. Question No 1 is *compulsory*. All questions carry equal marks. Assume missing data, if any, suitably.

1. (a) Write types of failure of finite slopes. $2.5 \times 6 = 15$
(b) A slope of sand has an inclination of 25° . The angle of internal friction is 35° . Determine the factor of safety.
(c) Where do we use cantilever & anchor type of sheet Piles ?
(d) State the purpose of bracing in deep excavations.

3704-750-(P-3)(Q-9)(26)

P. T. O.

- (e) A cantilever sheet pile retains soil to a height of 6 m. Estimate the depth of embedment.
- (f) Describe different types of machines & their foundations.

SECTION - A

2. (a) Describe step by step procedure to find out factor of safety by Swedish Circle method. 7.5
- (b) Explain factor of safety based on different parameters (cohesion, friction, shear strength). 7.5
3. Derive the expression for factor of safety for an infinite slope under a) Dry condition b) Submerged condition. 15

SECTION - B

4. Explain the pressure distribution behind sheeting in braced cuts with diagrams. 15
5. Explain the forces acting on cofferdams and their effects. 15

SECTION - C

6. (a) Describe the simplified procedure for embedment depth calculation in sandy soils. 10
- (b) Compare cantilever and anchored sheet pile walls. 5

7. (a) Discuss the equivalent beam method for anchored bulkheads. 10
- (b) Explain the free earth support method for cohesionless soils. 5

SECTION - D

8. (a) Discuss various soil stabilization methods and their suitability for different soil types. 7.5
- (b) What do you understand by reinforced earth. Explain the mechanism in resisting active earth pressure. 7.5
9. (a) A block foundation has: Mass = 4000 kg, Load = 120 kN, Settlement = 6 mm. Determine : 1. Soil spring constant 2. Natural frequency 5
- (b) Derive the expression for the amplitude of vibration and natural frequency of a machine foundation subjected to vertical undamped harmonic loading. 10

Roll No.

3713

B. Tech. 8th Semester (Civil Engg.)

Examination – May, 2026

SOLID AND HAZARDOUS WASTE MANAGEMENT

Paper : OEC-CE-416-G

Time : Three hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Answer the following questions : 2.5 × 6 = 15

- (a) Define municipal solid waste (MSW).
- (b) What is landfill gas ?
- (c) What is site assessment ?
- (d) Define radioactive waste.
- (e) What is meant by electronic scrap recycling ?
- (f) What is per capita waste generation ?

3713-650-(P-3)(Q-9)(26)

P. T. O.

UNIT - I

2. Describe the physical and chemical properties of municipal solid waste and their significance in waste management. 15
3. (a) Discuss the factors affecting solid waste generation rate in urban areas. 7.5
(b) Explain the methods used to measure solid waste quantities. 7.5

UNIT - II

4. (a) Describe various methods of material separation used in solid waste processing plants. 7.5
(b) Explain the handling and processing of solid waste at residential and commercial level. 7.5
5. Compare landfill and composting methods of waste disposal. 15

UNIT - III

6. (a) Define hazardous waste and explain its classification and risk assessment methods. 7.5
(b) Describe the principles of biodegradation of toxic waste. 7.5
7. (a) Discuss the environmental legislation related to hazardous waste management in India. 7.5
(b) Explain the process of composting and its advantages in waste management. 7.5

UNIT - IV

8. (a) Describe the different methods of disposal of radioactive waste. Compare their advantages and limitations. 7.5
(b) Explain the process of E-waste management, including collection, segregation, recycling, and recovery of valuable metals. 7.5
9. (a) Explain the sources and health effects of radioactive waste. 7.5
(b) Define E-waste and explain its composition. Discuss the environmental and human health impacts associated with improper E-waste management. 7.5

Roll No.

3707

**B. Tech. 8th Semester (Civil Engg.)
Examination – May, 2026**

STRUCTURAL DYNAMICS

Paper : PEC-CEEL-414G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) Define Degree of Freedom (DOF) and types.

$6 \times 2.5 = 15$

- (b) Explain D'Alembert's principle and its application in dynamic equilibrium.

- (c) Differentiate over damped and under damped system.

3707-600-(P-4)(Q-9)(26)

P. T. O.

- (d) Calculate the frequency and period time for a spring of stiffness 20kN/m supports a mass of 4 kg.
- (e) What is meant by lumped mass idealization ?
- (f) What are the components of the equation of motion ?

SECTION – A

2. A mass of 12 kg is supported by a steel wire 1 m in dia and 3 m long. The system is made to move upwards with a uniform velocity of 10 cm/sec when the upper end is suddenly stopped. Determine the frequency and the amplitude of the resulting vibrations of the mass and the maximum stress on the wire. 15
3. A single degree of freedom system having a mass of 2.5 kg is set into motion with a viscous damping and allowed to oscillate freely. The frequency of oscillation is found to be 20 Hz. and measure of the amplitude of vibration shows two successive amplitude to be 6 mm and 5.5 mm. Estimate the viscous damping coefficient. 15

SECTION – B

4. Derive an expression for the force transmitted to the foundation and phase angle for a damped oscillator idealized as a SDOF system subjected to harmonic force. 15
5. A three storey building has seismic weights of 200 kN, 300 kN and 420 kN at I, II and III store's respectively. The corresponding stiffness's are 20000 kN/m, 25000 kN/m and 30000 kN/m. (i) Examine the model frequencies. (ii) Sketch the mode shapes. 15

SECTION – C

6. A structure is subjected to base motion :
 $y(t) = Y \sin(\omega t)$, where $Y = 0.02$ m, $\omega = 6$ rad/s. Given :
 $m = 500$ kg, $k = 8000$ N/m, $\zeta = 0.1$. Determine :
 (a) Relative displacement amplitude
 (b) Absolute acceleration. 15
7. For a beam element derive the consistent mass matrix. Compare it numerically with the lumped mass matrix. 15

SECTION - D

8. Explain the response of continuous system to dynamic loading. 15
9. (a) Explain SRSS System. 7
- (b) Explain CQC combination of model response. 8