Roll No: | | | | | | | | | |

The Assam Royal Global University, Guwahati

Royal School of Engineering & Technology

B Tech (Civil Engineering) 7th Semester

Semester End Examination, January 2023

Course Title: Engineering Economics, Estimation & Costing

Course Code: CEE022C703

Time: 3 Hours **Maximum Marks: 70**

Note: Attempt all questions as per instructions given.

The figures in the right-hand margin indicate marks.

Section – A

1. Attempt **all questions**. (Maximum word limit 50) **2 x 8**

a. What is scrap value?

b. What is salvage value?

c. What is Year Purchase?

d. What is sinking fund?

e. What is the amount of steel required for reinforcement by 16 mm dia bars for 100 m?

f. What is the volume of coarse aggregate required to make 100 m^3 1: 2: 4 concrete?

g. What is the unit of measurement for flooring?

h. What is the normal lead for earthwork?

Section – B

2. Attempt **any one** of the following: **12 x 1**

a. Using Long Wall-Short Wall method, estimate the quantities of the following items from the given plan and section A-A, figure 1:

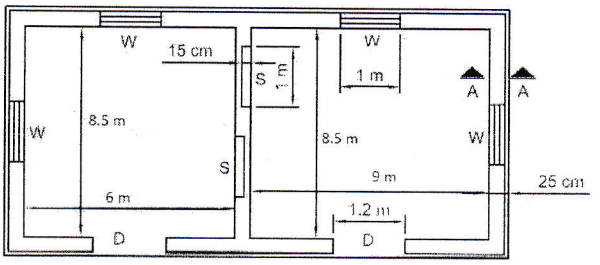
i) Earthwork in excavation in foundation.

ii) Cement Concrete in foundation.

iii) Ist class brickwork in 1:6 cement mortar in foundation and plinth.

iv) 2.5 cm c.c. damp proof course.

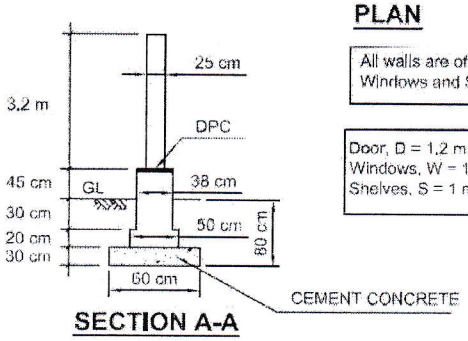
v) Brick work in cement mortar 1:5 in superstructure.



PLAN

All walls are of same section. Lintels over Doors, Windows and Shelves are 15 cm thick RCC

Door, D = 1.2 m x 2.1 m
Windows, W = 1 m x 1.5 m
Shelves, S = 1 m x 1.5 m



SECTION A-A

Figure 1

b. Reduced Level (RL) of ground along centre line of a proposed road from chainage 10 to chainage 20 are given below. The Formation level at 10th chainage is 107 and the road is in downward gradient of 1 in 150 up to the chainage 14 and then the gradient changes to 1 in 100 downwards. Formation width is 10m and side slope of banking are 2:1 (H:V). Length of chain is 30m. Draw longitudinal section of the road and a typical cross-section and prepare an estimate of earthwork at rate of Rs 275/Cum.

Chainage	10	11	12	13	14	15	16	17	18	19	20
RL Of Ground	105	105.6	105.44	105.90	105.42	104.30	105.00	104.10	104.62	104.00	103.30
RL Of Formation	107.00										
Gradient	Down gradient 1 in 150					Down gradient 1 in 100					

3. Attempt **any two** of the following: **7 x 2**

a. An old building has been purchased by a person at a cost of Rs. 30,000 excluding the cost of the land. Calculate the amount of annual sinking fund at 4% interest assuming the future life of the building as 20 years and the scrap value of the building as 10% of the cost of purchase.
b. Discuss the General Specifications of a first-class building.
c. Explain the Mid-Sectional Area method for estimating of earthwork in Road estimate.

4. Attempt **any two** of the following: **7 x 2**

a. Analyze the rate for cement concrete with ratio 1: 1.5: 3 for one cubic meter. Take 10 cum concrete. Assume the rate as under.
   i) Cement = ₹ 450 / bag
   ii) Sand = ₹ 1000 per cum
   iii) Stone ballast = ₹ 1200 per cum
   iv) Head mason = ₹ 800
   v) Mason = ₹ 600
   vi) Mazdoor & Bhisti = ₹ 500.
b. Discuss the Mean Sectional area method for earthwork in road estimating.
c. A lease hold property is to produce a net income of Rs 12,000 for the next 40 years. The owner expects a return of 7% on his capital and also sets apart a sinking fund installment to accumulate at 6% annually to replace the capital. Determine the value of the property.

5. Attempt **any two** of the following: **7 x 2**

a. Give the detailed specifications of Reinforced Cement Concrete(RCC).
b. Explain Separate or Individual wall method for building estimate.
c. Explain the terms: Work-charged Establishment, Schedule of Rates, Bill of Quantities, Book value.