

**Code: 150-8306**

**ARCH**

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM  
(Autonomous)

Reg. No.

October/November 2019 Examinations  
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

**Estimation and Costing**

Year/Sem: III / V (ODD-III)

Max. Marks : 75

Time : 3 hr.

**PART-A**

**(5 x 2 = 10 Marks)**

**Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.  
(ii) All questions carry equal marks.**

- 1 Define revised estimate.
- 2 Mention any two methods of approximate estimates.
- 3 Name the various types of specification.
- 4 Write any two points to be considered while report writing.
- 5 Calculate the quantity of cement required in C.M 1:4 for 10 m<sup>3</sup>
- 6 What is meant by standard rent?
- 7 Define abstract estimate.
- 8 Define book value.

**PART-B**

**(5 x 3 = 15 Marks)**

**Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.  
(ii) All questions carry equal marks.**

- 9 What are the different types of estimates and define plinth area method of estimate.
- 10 What are the advantages of standard specification?
- 11 What is Specification and what is the importance of specification in a construction project?
- 12 Briefly explain the preparation of data.
- 13 Explain the term schedule of rates.
- 14 Define (i)Market rent (ii) Economical rent .
- 15 Write advantages of Trade system.
- 16 Define: (i) Salvage value (ii) Scrap value

**PART-C**

**(5 x 10 = 50 Marks)**

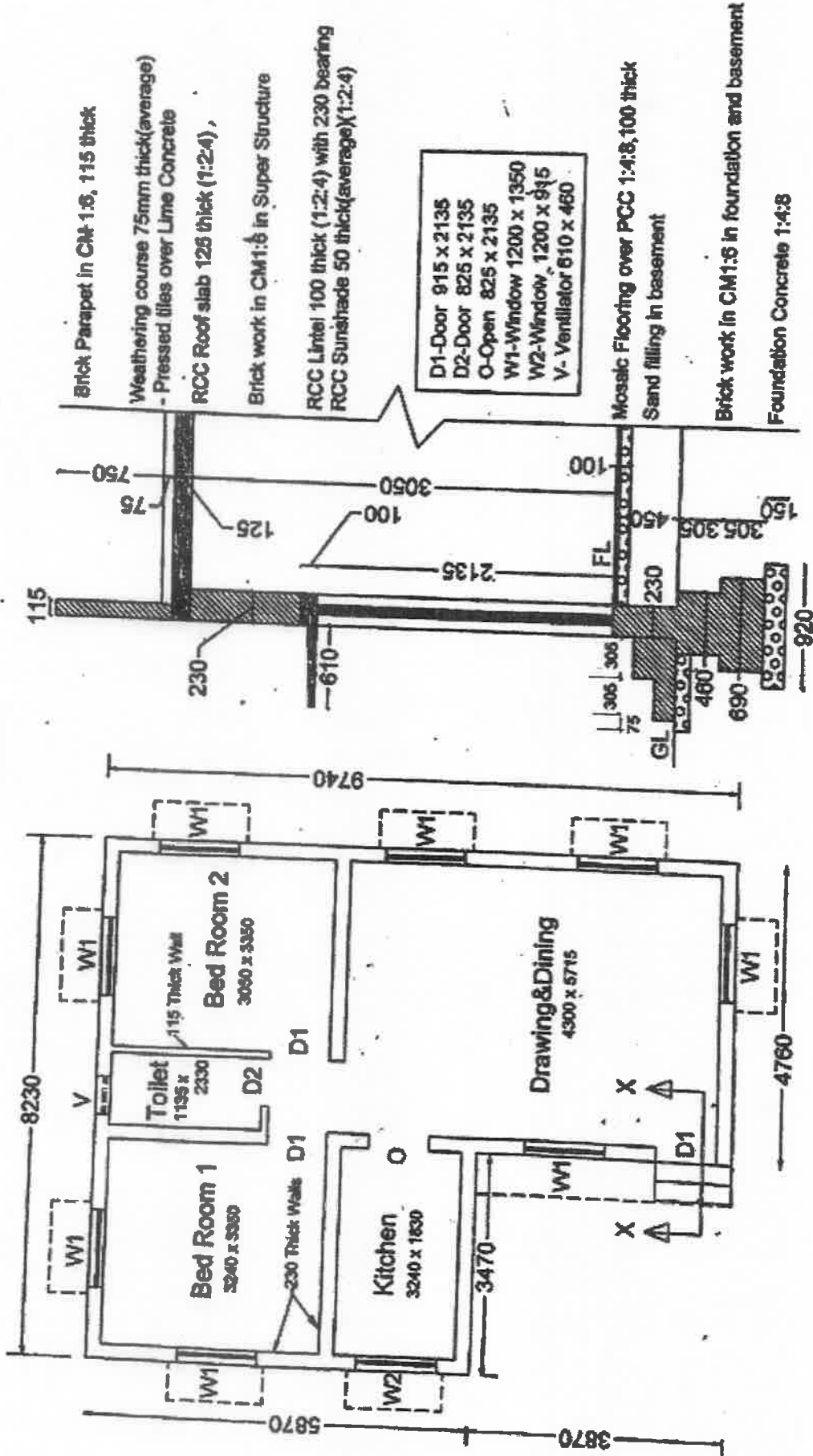
**Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.**

**(ii) All questions carry equal marks.**

- 17 A Explain (i) Approximate estimate (ii) Detailed estimate (iii) Revised estimate, 10  
(iv) Supplementary estimate (v) Repair estimate.  
(OR)
- B The actual expenditure incurred in the construction of a building for a shopping 10  
complex of plinth area 82m<sup>2</sup> is found to be Rs. 9 lakhs in which 60% towards cost of  
the materials and remaining is towards cost of the labour. It is now proposed to  
construct similar shopping complex of same height and specification with the plinth  
area of 120 m<sup>2</sup> at a place where cost of materials is 20% more and cost of labour is  
10% less. Estimate the cost of the shopping complex approximately.
- 18 A Explain detailed specification for brick work in CM1:5 using first class bricks in super 10  
structure.  
(OR)
- B A proposal has to be submitted to the Collector for the construction of a HOSPITAL in 10  
a village. Write a report to accompany the proposal.

- 19 **Analyse and determine the rates for the following items of works with the given data.** 10
- A Centering for soffits of RCC slabs including strutting 3m height - rate for 1m<sup>2</sup>.  
Materials and labours required:  
Centering for soffits of RCC slabs including strutting -1m<sup>2</sup>.
- |                       |                       |
|-----------------------|-----------------------|
| Country wood boarding |                       |
| 40mm tk               | = 0.4 m <sup>3</sup>  |
| Country wood joist    | = 0.12 m <sup>3</sup> |
| Casurina post         | = 98.5m               |
- (The above materials can be used for 5 operations)
- |                             |              |
|-----------------------------|--------------|
| Carpenter I class           | = 3.8 Nos    |
| Mazdoor I class             | = 5.4 Nos    |
| Mazdoor II class            | = 21.5 Nos   |
| Wedge ,nails and coirs etc, | =(LS) Rs.100 |
- (OR)**
- B Providing and fixing G.I pipes -10m 10
- Materials and labours required:
- |                          |                    |
|--------------------------|--------------------|
| 25mm dia GI pipe         | = 10m              |
| Fitting and wastage      | = 15% of pipe cost |
| White lead ,oil,hemp     | = Rs 35.00         |
| Plumber I class          | =0.83No.           |
| Mazdoor I class          | = 0.67 No.         |
| Cement ,sand, grit (L.S) | =(L.S)Rs.100       |
| Water charges            | =1%                |
- Cost of materials and labours:
- |                       |                            |
|-----------------------|----------------------------|
| Country wood boarding |                            |
| 40mm tk               | = Rs.1000 / m <sup>3</sup> |
| Country wood joist    | = Rs.600 / m <sup>3</sup>  |
| Casurina post         | = Rs.200 / m               |
| 25mm dia GI pipe      | = Rs.100 / m               |
| Carpenter I class     | = Rs.400 / each/day        |
| Mazdoor I class       | = Rs.300 / each/day        |
| Mazdoor II class      | = Rs.200 / each/day        |
| Plumber I class       | = Rs.400 / each/day        |
- 20 A A building was constructed 10 years back at a cost of Rs.1,25,000. As per the PWD Schedule of rate, the present day rate of material and labour increased by 20% over the original cost. What is the present value of the building if the rate of depreciation is 1.5% 10
- (OR)**
- B Calculate the fair rent for a building to be used for residential purpose from the following data: 10
- |   |                         |
|---|-------------------------|
| Cost of building at the present market rate             | =Rs.1,80,000            |
| Age of the building                                     | = 20 years              |
| Material used   | = R.C.C & teak wood     |
| Area of the plot  | = 200 m <sup>2</sup>    |
| cost of land in the locality                            | = Rs.350/m <sup>2</sup> |
| Sanitary,water supply amenities and electrical fittings | = Rs.20,000             |
- 21 Take off the quantities for the following items for the "Residential building with RCC roof" shown in Sketch -I 10
- A i) Earth work excavation for foundation  
 ii) Brick masonry in CM 1:6 using I class bricks in foundation and basement.
- (OR)**
- B i) Cement concrete 1:4:8 mix using 40mm hard broken stone for foundations.  
 ii) Brick masonry in CM 1:6 using I class bricks in superstructure. 10

SKETCH-I



PLAN

CROSS SECTION X-X

# A SMALL RESIDENCE

ALL DIMENSIONS ARE IN MM



THIAGARAJAR POLYTECHNIC COLLEGE, SALEM  
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Reg. No. 

October/November 2019 Examinations  
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP  
Environmental Engineering

Year/Sem: III / V (ODD-III)

Max. Marks : 75

Time : 3 hr.

**PART-A****(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 Define per capita demand.
- 2 List out any two water borne diseases.
- 3 Define disinfection of water.
- 4 List out the different systems of water supply.
- 5 Define Eco-system.
- 6 What is meant by biodiversity?
- 7 What is deforestation?
- 8 What is disaster and state its types?

**PART-B****(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Mention the methods of forecasting population.
- 10 What are the requirements of potable water?
- 11 What is meant by coagulation? Name any four coagulants which are commonly used.
- 12 Define reservoir and mention its types.
- 13 What are the characteristics of eco-system?
- 14 What are the effects of land pollution?
- 15 Write short notes about "Environmental Degradation".
- 16 Give a brief note about "Earthquake".

**PART-C****(5 x 10 = 50 Marks)****Note: i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****ii) All questions carry equal marks.**

- 17 A The census record of a city shows the population as follows: 10

Year	:	1970	1980	1990	2000	2010
Population	:	65000	73000	86000	99200	108000

Workout the probable population in the years 2020, 2030 and 2040 by using arithmetical increase method.

**(OR)**

- B Write short notes on bacteriological tests on water. 10
- 18 A Describe the construction and operation of a rapid sand filter with a neat sketch. 10

**(OR)**

- B Mention the various layouts of distribution of water supply system and explain them in detail. 10

- 19 A Explain the different types of Eco-system. 10

**(OR)**

- B Write in details about food chains, food webs and ecological pyramids. 10

- 20 A Describe the harmful effects of air pollution on human beings, animals and plants. 10

**(OR)**

- B Write short notes on i) Green house effect ii) Ozone layer depletion. 10

- 21 A What are the effects of flood? Write the activities of flood management. 10

**(OR)**

- B Write in detail about fire escapes in buildings. 10

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DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

Building Services-II

Year/Sem: III / V (ODD-III)

Max. Marks : 75

Time : 3 hr.

**PART-A****(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 What are the points to be considered to locate a lift in a building?
- 2 What are conveyors? Write their uses.
- 3 What is air conditioning?
- 4 What is humidity control?
- 5 Define fire hazard and fire load.
- 6 Define the term reverberation.
- 7 Write short notes on structural crack.
- 8 Name any two fire protection systems.

**PART-B****(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Briefly explain hospital bed lift.
- 10 State the uses of escalator.
- 11 What is the function of a diffuser? Where it is provided?
- 12 Explain briefly the heating equipments.
- 13 Write any three characteristics of fire resisting material.
- 14 Name any six sound absorption materials.
- 15 Explain any two maintenance works in buildings.
- 16 What are the causes of fire?

**PART-C****(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All questions carry equal marks.**

- |    |   |   |    |
|----|---|---|----|
| 17 | A | Explain the components of a lift with a neat sketch.                                    | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | With a neat sketch explain escalator and its components.                                | 10 |
| 18 | A | Explain Mechanical Ventilation in buildings.  | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Explain split AC with a neat sketch.  | 10 |
| 19 | A | Write short notes on i) Fire escape routes  | 5  |
|    |   | ii) Smoke detector  | 5  |
|    |   | <b>(OR)</b>   |    |
|    | B | Explain the different methods of fighting fire.   | 10 |
| 20 | A | Explain the practical consideration of noise control and sound insulation in buildings. | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Prepare a sound insulation layout for a cinema theatre.                                 | 10 |
| 21 | A | Write the general precautions to prevent cracks in buildings.                           | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Explain how water proofing works for flat concrete roofs are carried out?               | 10 |

**PART-A****(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 What are the objectives of an interior design?
- 2 Mention any two uses of colour in interior design.
- 3 Define: Anthropometry.
- 4 Mention any two examples for Built in Furniture.
- 5 Mention any two features of a room divider.
- 6 What are the roles of an artifacts in an interior design?
- 7 Define: Drapery.
- 8 Mention any two features of false ceiling.

**PART-B****(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 What are the principles of design?
- 10 Define: Balance
- 11 Draw the view of sofa with dimensions.
- 12 What are the aspects to be considered for the selection of furniture?
- 13 Define: Modular Kitchen
- 14 Define: Mural
- 15 Sketch the layout of living hall with furniture arrangement.
- 16 What are the features of Plants in an interior design?

**PART-C****(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All questions carry equal marks.**

- |    |   |   |    |
|----|---|---|----|
| 17 | A | Write an elaborate note on application of principles of design in interiors.                                | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Write an elaborate note on application of colours in the interior design.                                   | 10 |
| 18 | A | Explain with sketch: Dimensional standards for a Master Bedroom furniture.                                  | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Write an elaborate note on role of activities and function in the design of interiors of a residence.       | 10 |
| 19 | A | Draw the furniture layout for a Living hall with necessary furniture.                                       | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Draw the furniture layout for a kitchen along with the work triangle.                                       | 10 |
| 20 | A | Write an elaborate note on various types of finishes for walls, floors and ceiling for a hospital building. | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Write a short note on the followings:   |    |
|    |   | (i) Artifacts   | 5  |
|    |   | (ii) Upholstery   | 5  |
| 21 | A | Draw the layout of a restaurant with furniture arrangements and show the lighting features.                 | 10 |
|    |   | <b>(OR)</b>   |    |
|    | B | Draw the electrical layout for a master bedroom along with the furniture arrangement.                       | 10 |