



# CBCS SCHEME

17EE553

## Fifth Semester B.E. Degree Examination, Aug./Sept.2020 Electrical Estimation and Costing

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

### Module-1

- 1 a. Define Estimating and explain the purpose of Estimating and Costing. (06 Marks)
- b. State the important facts which an Estimator should know for preparing an internal wiring Estimate. (06 Marks)
- c. Explain the following terms associated with Estimation and Costing :  
i) Electrical schedule ii) Contingencies iii) Overhead charges iv) Profit. (08 Marks)

**OR**

- 2 a. Explain in detail 'Purchase System' to be followed in a large organization. (08 Marks)
- b. What is meant by Tendering? Explain the guidelines for inviting Tenders. (07 Marks)
- c. What do you understand by IE Act and IE Rules? State any two IE Rules. (05 Marks)

### Module-2

- 3 a. Explain the different systems of distribution of Energy in a Building. (05 Marks)
- b. What are the systems of wiring that are in common use in recent times for domestic wiring installations? Explain the points on which the choice for a particular system of wiring has to be made. (06 Marks)
- c. Write notes on the following with reference to internal wiring installations :  
i) Multistrand cables ii) Voltage grading of cables iii) Specification of cables. (09 Marks)

**OR**

- 4 a. Explain briefly the following : i) A linked main switch ii) A linked main switch and Fuse unit iii) Fuse cut – out iv) Distribution Board. (06 Marks)
- b. With reference to internal electrification of a building , explain how to determine the following : i) Total load ii) Rating of main switch and Distribution Board iii) Number of sub – circuits iv) Size of the conductor. (08 Marks)
- c. A Residential Building is to be provided with Electrical installation to be connected to a single phase 240V, 50Hz, ac supply. Details of the Electrical points to be installed in the building are as follows :  
Lighting circuit : Light points – 8 Nos , 5A socket outlets – 7 nos.  
Heating circuit : 15A socket outlets – 2 Nos.  
Determine : i) Total number of sub – circuits ii) Rating of distribution board  
iii) Size of cable for lighting circuit iv) Size of cable for heating circuit. (06 Marks)

### Module-3

- 5 a. Explain what is meant by service main or service connection. What are the existing types of services connections? List the advantages and disadvantages of each type. (06 Marks)
- b. With a neat sketch, explain how service line can be installed for a low – rood house. (06 Marks)
- c. List the important considerations regarding motor installation wiring. (08 Marks)

OR

- 6 a. Explain with reference to installation of motor wiring, determination of the following :  
 i) Input Power    ii) Input current    iii) Rating of Fuse    iv) Rating of cables. (10 Marks)
- b. Two ac, 3 phase, 415V, 50Hz Induction motors are to be installed in a workshop. The rated output of the motors are 15HP and 10HP respectively. Determine  
 i) Input power to individual motors and the total power requirement.  
 ii) Size of control switches with their specifications and recommend the type of starter, if there is a requirement. (10 Marks)

**Module-4**

- 7 a. With reference to overhead lines, explain the following :  
 i) Phase plates    ii) Anti-climbing devices    iii) Muffs    iv) Beads of Jumpers. (08 Marks)
- b. Explain the points to be considered at the time of erection of overhead lines. (06 Marks)
- c. Explain the following : i) Conductors configuration    ii) Spacing and    iii) Clearances. (06 Marks)

OR

- 8 a. Explain what is meant by i) Preparing and jointing of conductors    ii) Guarding of overhead lines. (06 Marks)
- b. A Pole for an 11KV, 3 phase, 50Hz overhead line is situated on the bank of the road where there is no space at front or back for fixing the stay in the ground. This pole is to be Earthed and a stay is to be provided. Explain with a sketch how this can be achieved. (08 Marks)
- c. Explain the following with simple sketches :  
 i) Guys and Stays    ii) Jumpers. (06 Marks)

**Module-5**

- 9 a. Explain the requirement of the following in a substation :  
 i) Instrument Transformers    ii) Substation auxiliary supply  
 iii) Substation Earthing    iv) Batteries. (10 Marks)
- b. Explain a typical 66KV substation with single line diagram. (10 Marks)

OR

- 10 a. A 10 MVA, 33KV/11KV substation is to be installed. Prepare a list of components required and draw the key diagram of the substation. (10 Marks)
- b. Explain the functions of the following in a substation :  
 i) Lightning Arresters    ii) Isolators    iii) Circuit Breakers    iv) Bus Bars. (10 Marks)

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