00872

DIPLOMA IN ELECTRICAL AND MECHANICAL ENGINEERING

Term-End Examination

June, 2011

BET-038 : ESTIMATING AND QUANTITY SURVEYING

Time : 2 hours *Maximum Marks : 70*

Note : *All questions of section 'A' are compulsory. Attempt any two questions from section 'B' and any two questions from section 'C'. Use of calculator is **permitted**.*

SECTION 'A'

1. State 'True' or 'False' for the statements given below : **1x8=8**

   (a) Testing of service mains in an external water supply scheme shall be done upto twice the maximum permissible pressure in a pipe.

   (b) MES, SSR Part I relates to the rates of materials to be incorporated.

   (c) Earthwork volume in long trenches cannot be calculated by 'average cross-sectional area method'.

   (d) Satisfactory mix of materials for lime concrete can be achieved by mixing with water alone and no dry mixing should be done.

(e) Rate analysis of plain concrete work includes cost of labour and hiring of tools and plants also.

(f) Earth resistance can be reduced by using charcoal in salt solution in the earth pit.

(g) MCBs can be used in place of conventional fuses.

(h) Earthing of electric poles must be done at least per every fourth or fifth pole.

2. Explain *any Three* of the following (max 50 words each) : **2x3=6**

(a) Cable terminations

(b) MCCB

(c) Plinth Protection

(d) Earthwork in laying cables

(e) MES, SSR, Part I

(f) Slump Test

SECTION 'B'

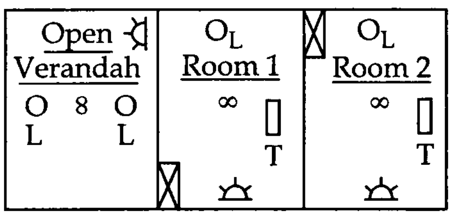
(Answer *any Two* questions) **4+3=7**

(a) Explain briefly the purpose of MCB and its working. What is the difference between MCB and MCCB ?

(b) Given the plan of a small building, draw the following : **3+4=7**

(i) Conduit layout plan showing position of energy meter, main switch and switch board also.

(ii) Wiring diagram.



Plan

. (a) What is a feeder, distributor and a service main ? Explain with the help of a diagram how an electric pole for tapping a service mains can be earthed. **4+3=7**

(b) For a large room of 20 m × 10 m, calculate the number of single tube light sets required and show their arrangement diagramatically for the following parameters : **3+4=7**

(i) Required illumination level = 240 Lux

(ii) Cu = 0.7, O = 2400

(iii) MF = 0.8

(iv) Mounting height = 3.0 mtrs

(v) Space to height ratio = 1.25

(vi) Wattage of each tubelight = 40 watts.

(vii) Length of tube rod = 4 feet.

(a) List the various methods of reducing the earth resistance. Draw the cross section of 'plate - earthing' scheme. 2+3=5

(b) Briefly explain the purpose of air values in an external water supply scheme. 2

(c) Calculate the size of roof tank and diameter of pumping main of a water supply scheme for the following parameters : 7

(i) Construction - Residential Accomodation.

(ii) No. of persons - 50

(iii) Type - flat system, Four Floors (Ground + 3 floors)

(iv) No storage for fine fighting is to be considered.

Assume the following :

(i) Per person requirement in a day = 100 Ltrs

(ii) 1 day storage

(iii) Filling time of water tank = 2 hrs

(iv) Velocity in pumping main = 1.5 Mtr/second

(v) Any other assumption if felt necessary, but clearly indicate the same.

SECTION 'C'

6. (a) Write short notes for the following : 3+2+2=

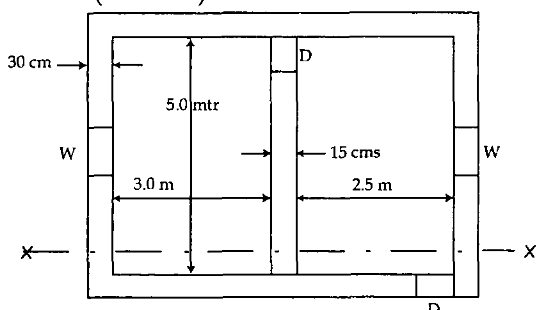
(i) 'Long-wall' and 'short-wall' method of computing earthwork in building foundations.

(ii) Rate analysis of plain concrete work

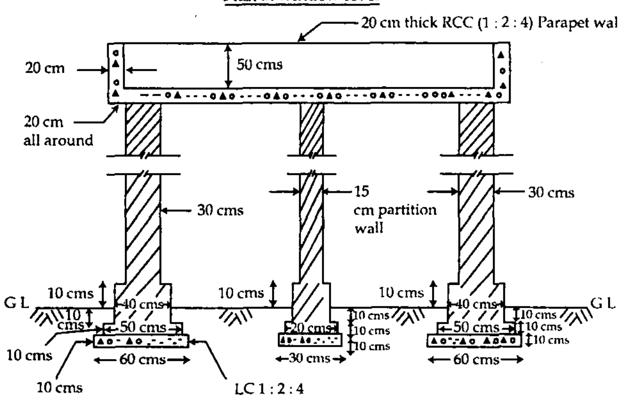
(iii) DPC

(b) With the help of diagrams explain computation of earthwork in laying of pipes and cables. 7

7. For the following plan and section x-x, calculate the L C (1 : 2 : 4) in foundation. **14**



D = 1.2 × 2 m
W = 1.1 × 1.5 m
Plan at window level



Section X - X

8. A road has been aligned along a given direction ; the relevant survey data and also the proposed formation levels are tabulated below : 14

Distance	Natural Surface Level	Proposed Formation Level
0 m	111.87 m	111.87 m
30 m	111.87 m	111.87 m
60 m	115.62 m	111.97 m
90 m	114.50 m	112.07 m
130 m	116.31 m	112.203 m
150 m	113.90 m	112.203 m
180 m	115.20 m	112.203 m

Assuming the proposed road cross section as trapezoidal with side slopes of 1 : 1 and the formation width equal to 7.50 m, compute the earthwork in cutting/filling, as the case may be, in a tabular manner.