CS/B.Tech/CE/Even/Sem-6th/CE-603/2015

WEST BENGAL UNIVERSITY OF TECHNOLOGY

CE-603

CONSTRUCTION PLANNING AND MANAGEMENT

Time Allotted: 3 Hours   Full Marks: 70

The questions are of equal value.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as
practicable. All symbols are of usual significance.

GROUP A
(Multiple Choice Type Questions)

1. Answer any *ten* questions.   10×1 = 10

(i) Slack =

    (A) $T_L - T_E$ (B) $T_E - T_L$

    (C) $T_E + T_L$ (D) $(T_L - T_E) / (T_L + T_E)$

(ii) A critical activity has

    (A) maximum float   (B) minimum float

    (C) zero float   (D) average float

(iii) Numbering of events in a network can be done using

    (A) Fulkerson rule   (B) Gnatt's rule

    (C) Taylor's rule   (D) None of these

(iv) If t_o, t_p, t_m are the optimistic, pessimistic and most likely time estimates of an activity respectively the expected time t of the activity

(A) $(t_o + 4t_m + t_p)/4$

(B) $(t_o + 3t_m + t_p)/4$

(C) $(t_o + 4t_m + t_p)/6$

(D) None of these

(v) P.E.R.T. network is

(A) Activity oriented

(B) Event oriented

(C) Both activity as well as event oriented

(D) Neither activity nor event oriented

(vi) The most suitable type of equipment for compaction of cohesive soils is

(A) smooth-wheeled rollers

(B) vibratory rollers

(C) sheep footed rollers

(D) tampers

(vii) When submitting a tender the contractor has to deposit a certain amount of money with the department as guarantee of the tender. This deposit is called.

(A) Security deposit

(B) Earnest money

(C) Retention money

(D) All of these

(viii) A Turn-key contract means

(A) To design and build

(B) To build the structure only

(C) To perform all the function from inception to completion of the construction

(D) The same as the unit price contract

(ix) Sinking fund is

(A) A fund for rebuilding a structure when its economic life is over

(B) Raised to meet maintenance cost

(C) The total sum to be paid to the municipal authorities by tenants

(D) Apart of the money kept in reserve for providing additional structures and structural modifications.

(x) In PERT analysis, the time estimate of activity and probability of their occurrence follow

(A) Normal distribution curve

(B) Poisson's distribution curve

(C) Beta distribution curve

(D) None of the above

(xi) Select the incorrect statement

(A) Start float and finish float are always equal

(B) Total float can be either start float or finish float

(C) Start float and finish float need not be equal

(D) Start float and finish float are the difference between activity times and not event times

GROUP B
(Short Answer Type Questions)

Write short notes on any *three* of the following.　　　　3×5 = 15

2.(a) Tender and Contract.

(b) Fire protection provisions in tall buildings.

(c) Floor area ratio.

(d) Kolkata Building Rule provisions for side and rear open spaces for dwelling units.

(e) Security deposit and retention money.

GROUP C
### (Long Answer Type Questions)

Answer any *three* questions.　　　　3×15 = 45

3. Present the following activity in form of network chart and determine

(a) Critical path,

(b) Total Float,

(c) Free Float and,

(d) Independent Float.

Activity	1-2	1-3	1-4	2-5	2-7	3-4	3-6	4-5	5-6	5-7	6-7	7-8
Duration(day)	6	7	8	7	8	4	4	9	5	6	6	9

4.   (i) Define activity, event and network.   3+3+9
     (ii) Differentiate between PERT and CPM.
     (iii) For the network shown in Figure-1, work out the total float, free
           float and independent float of all the activities.

Figure-1
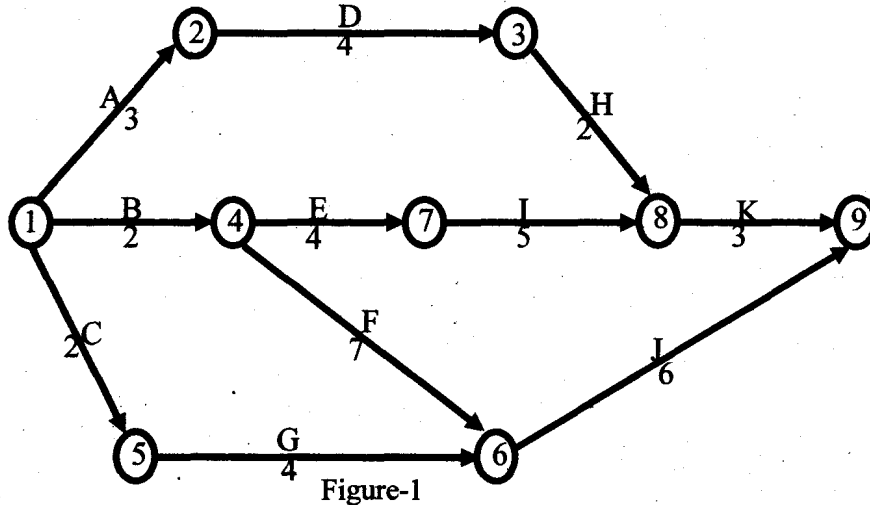
5.   (i) Classify building based on fire protection. Discuss in brief on   3+4
     general requirements for fire protection of buildings upto 14.5 m
     height.

     (ii) Find out the maximum ground coverage and floor area ratio of a   4+4
     plot in a Municipal area as shown in Figure-2 for planning
     construction of a (G+2) residential building using front, side and rear
     margins as per Municipality regulations and byelaws.
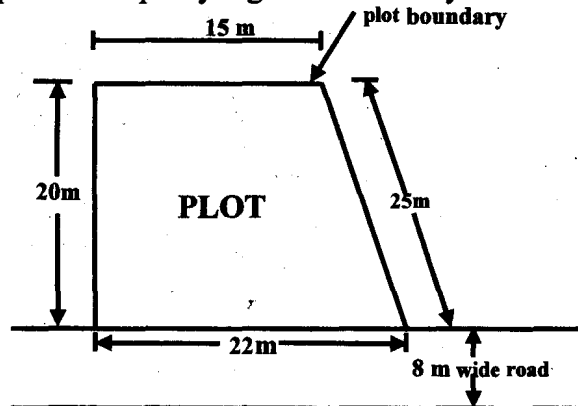
Figure-2

6. Figure-3 shows the network for a construction project, with three time 15 estimates of each activity marked. Determine
    (i) Critical path and its standard deviation,
    (ii) Probability of completion of project in 40 days,
    (iii) Time duration that will provide 95% probability of its completion in time.

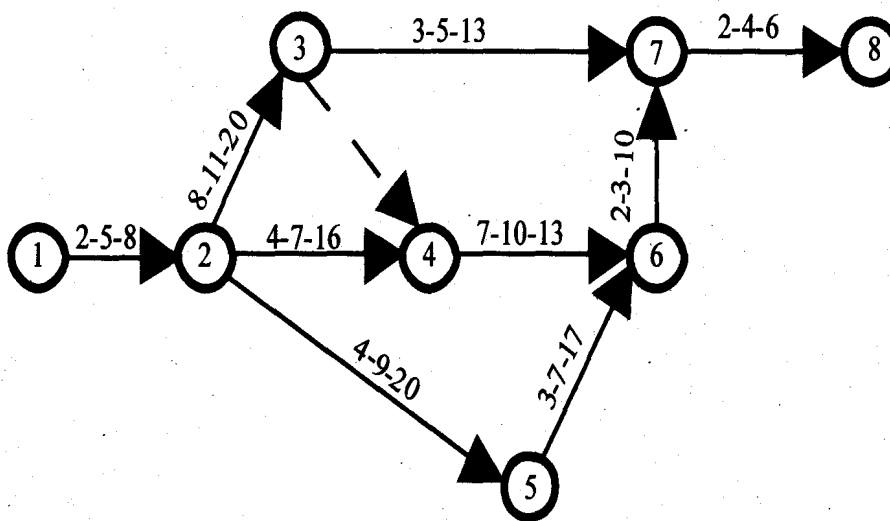| Given	Z	probability (Pr%)
	1.0	84.13%
	1.1	86.43%
	1.6	94.52%
	1.7	95.54%

Figure-3

7.(a) What is arbitration? What is the need for arbitration?   1+3

 (b) What are the powers of arbitratior?   5

 (c) What are the duties and liabilities of an engineer?   6