(viii)   Which of the following types of pumps can be used for concreting?
(a) Piston operated and centrifugally operated
(b) Piston operated and pneumatically operated
(c) Piston operated, centrifugally operated and screw type
(d) Pneumatically operated and screw type

(ix)   A scraper is
(a) best loading machine   (b) best hauling machine
(c) best loading and hauling machine   (d) only scraping machine.

(x)   Which of the following is not an excavating and moving type of equipment?
(a) Bulldozer   (b) Clamshell   (c) Scraper   (d) Dump truck

Group – B

2. (a)   Write short notes on the following:
i) Aspect ii) Prospect

(b)   What is Floor Area Ratio (FAR)? A building is to be constructed on a plot area of 900 sq.m. The site about two streets, one of 25 m. width and the other of 15 m, FAR is 2.0. Determine the built up area of the building and its height. Ground coverage is maximum 50%.

6 + (1 + 5) = 12

3. (a)   Write short notes on any two of the following:
i) Carpet area ii) Ground coverage iii) Means of access

(b)   What are the importance of travel distance and fire escape in a building?

(3 × 2) + 3 + 3 = 12

Group – C

4.(a)   Mention few common construction equipments. Also mention the equipments used for excavation of soil.

(b)   Write short notes on the following:-
(i) Tractors and it's types
(ii) Uses of bulldozers

(c)   Determine the output of a bull dozer for the following situation:
(i) Material handled sandy loam top soil having swell= 30 %
(ii) Haul distance (D) = 40 m.
(iii) Rated mould board capacity= 4 m³ loose volume.
(iv) Actual operating time/hr= 45 minutes.
(v) Forward speed (F) = 2.4 km/hr
(vi) Reverse speed (R)= 5 km/hr
   (Assume, Gear Shifting Time (G)= 0.3 minutes).

3 + (3 + 3) + 3 = 12

5. (a)   Write details on Ready-Mixed Concrete (R.M.C)

(b)   Write short notes on:
(i) Crawler type tractors
(ii) Curing of concrete

(c)   Calculate the time required to grade and finish 30 km of road formation of a 9 m. width for two-lane road with motor grader having width of 3.0 m, using 6 passes with a speed for each of the successive two passes as 5 km/hr, 7 km/hr and 9 km/hr respectively. Assume the machine efficiency is based on operator skill, working condition and machine characteristics as 80 %.

4 +5 + 3= 12

Group – D

6. (a)   In context with PERT, explain the following terminologies:
(i) Optimistic time estimate (t_0)
(ii) Pessimistic time estimate (t_p)

(b)   The network for a certain building project is shown in the figure below. Determine the expected time for each path. Which path is critical?
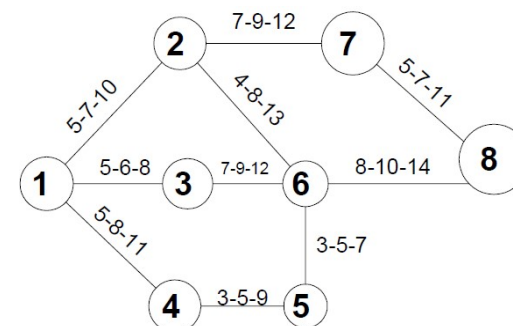
(2 + 2) + 8 = 12

7.   Draw a network diagram for the project having nine activities, with the following inter-relationships:

(i) C follows D but precedes F.
(ii) C follows B but precedes H.
(iii) G follows F but precedes I.
(iv) E follows A but precedes I.
(v) D follows A.
(vi) H and I terminate at the same time.
(vii) A and B start at the same time

12

Group – E

8.(a)   Define contract and explain the requirements for being a qualified contractor.

(b)   Mention all the various types of engineering contracts and explain any two of them.

6 + 6 =12

9.(a)   Draw the flowchart for organization of project work.

(b)   Mention any four characteristics of a tender notice.

10 + 2 = 12

PROJECT PLANNING AND MANAGEMENT
(CIVL 4283)

Time Allotted : 3 hrs   **Full Marks : 70**

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

1.   Choose the correct alternative for the following: **10 × 1 = 10**

(i)   The factors affecting roominess are
(a) size of the room   (b) position of doors and windows
(c) shape of the room   (d) all of these.

(ii)   The distance of the building facing a NH is from the centre line of the highway
(a) 15 m   (b) 30 m   (c) 45 m   (d) 60 m.

(iii)   A fire fighter system in which water is allowed to flow on a fire as a shower and fire is put out is called
(a) automatic sprinkler system   (b) carbon dioxide system
(c) dry chemical system   (d) wet chemical system.

(iv)   Mathematical representation of slack is:
(a) $(T_L - T_E)$ (b) $(T_E - T_L)$
(c) $(T_L + T_E)$ (d) $(T_L - T_E)/(T_L + T_E)$.

(v)   The occurrence of the starting of an activity is called
(a) head event   (b) tail event   (c) dual role event   (d) float.

(vi)   Float represents the difference between
(a) earliest completion time and latest allowable time
(b) latest allowable time and earliest allowable time
(c) earliest completion time and normal expected time
(d) latest allowable time and normal allowable time.

(vii)   While submitting a tender the contractor is to deposit a certain amount of money with the department as guarantee to the tender. The deposit is called
(a) security deposit   (b) retention money
(b) earnest money   (d) any of these.