MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

UNIVERSITY EXAMINATIONS
2013/2014 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE OF
BACHELOR OF SCIENCE IN CIVIL AND STRUCTURAL ENGINEERING

COURSE CODE: CSE 462 CONSTRUCTION MANAGEMENT II

DATE: **TIME: 3 HOURS**

INSTRUCTIONS:

1. Answer question 1 and any other THREE questions.
2. Provide neat sketches and diagrams where required.

QUESTIONS:

SECTION I: Answer the following compulsory question (25 Marks)

1. (a) Differentiate between Planning and Scheduling in construction management. State at least FIVE benefits realized by each. *(8 marks)*

(b) Explain the difference between CPM and PERT methods of project planning. *(4 marks)*

(c) By use of neat diagrams describe THREE types of organization structures practiced on site. Give the benefits of each. *(9 marks)*

(d) State FOUR methods of estimating the cost of construction works. *(4 marks)*

SECTION II: Answer any THREE questions (15 Marks each)

2. (a) Define the following terms used in network analysis:
   (i) Activity
   (ii) Event
   (iii)Float
   (iv)Slack *(8 marks)*

(b) A project consists of seven activities. The expected time of completion of each activity and sequence of event is shown in the table below:

ACTIVITY	DESCRIPTION	DURATION	PREDECESSOR
A	Excavation	2	-
B	Build formwork	3	-
C	Procure reinforcement steel	1	-
D	Grade materials	2	A
E	Erect the formwork	2	A,B
F	Set reinforcement steel	2	D,E,C
G	Place/cure concrete	1	F
H	Remove formwork	1	G

Construct the network diagram and locate the critical path. *(7 Marks)*

3. (a) Discuss the following schedules applied in Civil Engineering construction projects:
   (i) Construction schedule
   (ii) Material schedule
   (iii) Labour schedule
   (iv) Equipment schedule

(8 marks)

(b) For each of the following construction activities, give two examples of the plant/equipment used:

(i) Excavation of foundations
(ii) Cutting and hauling
(iii) Compaction work
(iv) Hoisting work *(4 marks)*

(c) List the advantages of using the mechanized method of construction. *(3 marks)*

4. (a) Explain the functions of a materials manager in a construction site *(5 marks)*

(b) Outline THREE methods used for computing the depreciation of plants and equipment on site. *(6 marks)*

(c) A Grader used for a road construction was priced at a cost of 22 million Kenya shillings and the assessed resale value after 5 years is 20 percent of its delivery price. The machine is to be operated for an average of 2000 hours per year. Compute the hourly depreciation in shillings. *(4 marks)*

5. (a) Explain the application of the following labour laws in Kenya:

(i) Minimum wage act
(ii) Workmen's compensation act *(5 marks)*

(b) As a Project Manager for the proposed women's hostel in MMUST you are required to prepare a construction schedule for the planned project. The details of the project are given below:

- Projected construction period = 104 weeks
- No. of storeys = 3 No.
- Capacity of hostel = 1000 students

Prepare a construction schedule using a Gantt chart. Make any other suitable assumptions. *(10 marks)*