KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER
SPECIAL/SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN RENEWBLE ENERGY AND BIOFUELS TECHNOLOGY

COURSE CODE: IET 481

COURSE TITLE: PROJECT MANAGEMENT FOR TECHNOLOGISTS

DURATION: 2 HOURS

DATE: 21/1/2022 **TIME:** 2-4PM

INSTRUCTIONS TO CANDIDATES

- Answer **QUESTION ONE** (Compulsory) and any other two (2) Questions.
- Indicate **answered questions** on the front cover.
- Start every question on a new page and make sure question's number is written on each page.

This paper consists of **3** printed pages. Please Turn Over

QUESTION 1 (30 marks)

a. State any five (5) key areas of project management. (5 marks)
b. State any five (5) sources of project ideas. (5 marks)
c. State any five (5) characteristics of a good project manager. (5 marks)
d. State any five (5) project financial appraisal methods. (5 marks)
e. State the steps involved in Monte Carlo Simulation. (5 marks)
f. Explain any five (5) steps involved in the process of establishing a project. (5 marks)

QUESTION 2 (20 marks)

A project consists of five activities as shown in the PERT network Fig. 1. The three estimates of activity duration along with the associated probability are given in the Table below. Using linear congruential method, generate 5 random numbers for each activity if $X_0 = 27$, a = 17, c = 43 and m = 10. Simulate the duration of the project five times and estimate the chances of various paths being critical. Also determine the average duration of the project.

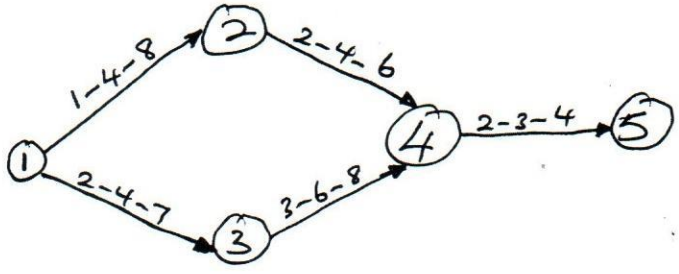

Fig. 1

Activity	Days	Prob.
1-2	1	0.2
	4	0.5
	8	0.3
1-3	2	0.3
	4	0.5
	7	0.2
2-4	2	0.3
	4	0.3
	6	0.4
3-4	3	0.3
	6	0.4
	8	0.3
4-5	2	0.2
	3	0.2
	4	0.6

QUESTION 3 (20 marks)

A project has twelve activities. The activity duration and the precedence relationship are given in Fig. 2. Find the total, free and independent floats for each activity. Identify the critical activities, the critical path and the project duration.

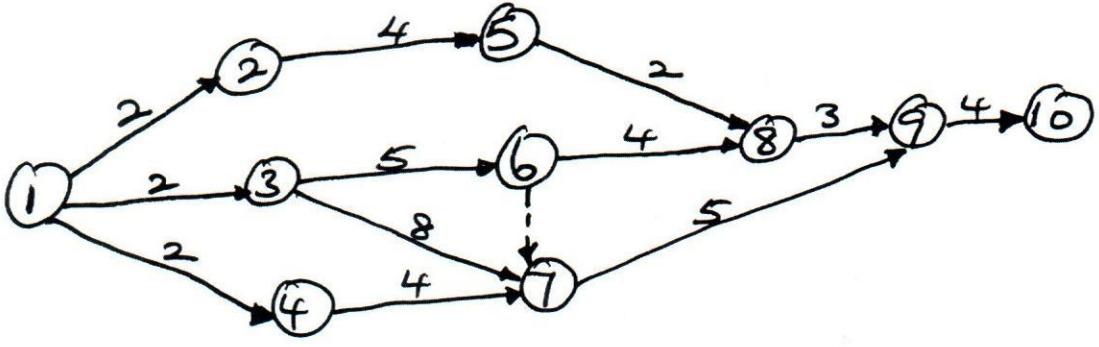

Fig. 2

QUESTION 4 (20 marks)

a. State any three (3) examples of Statistical analysis and 3 examples of operational research. (3 marks)
b. State any six (6) advantages of computer simulations in project management. (6 marks)
c. State any six (6) desired features of project management software. (6 marks)
d. Describe the Monte Carlo Simulation and how it works. (5 marks).

QUESTION 5 (20 marks)

a. State any five (5) sources of project finance. (5 marks)
b. Explain any five (5) stages of project management. (5 marks)
c. Compare and contrast CPM and PERT as used in project management. (5 marks).
d. State the procedure of simplex method using computers. (5 marks)