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KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER
MAIN EXAMINATIONS

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

COURSE CODE: IET 481

COURSE TITLE: PROJECT MANAGEMENT FOR TECHNOLOGISTS

DURATION: 2 HOURS

DATE: 6TH NOVEMBER, 2020

TIME: 9:00AM-12:00PM

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



KIBU observes ZERO tolerance to examination cheating

QUESTION 1 (30 marks)

- a. State any five (5) project characteristics. (5 marks)
- b. State any five (5) sources of project ideas. (5 marks)
- c. Explain any five (5) stages of project management. (5 marks)
- d. State any five (5) key areas of project management. (5 marks)
- e. State any five (5) characteristics of a good project manager. (5 marks)
- f. State any five (5) sources of project finance. (5 marks)

QUESTION 2 (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 3 (20 marks)

A project has twelve activities. The activity duration and the precedence relationship are given in Fig. 1. Find the total, free and independent floats for each activity. Identify the critical activities, the critical path and the project duration.

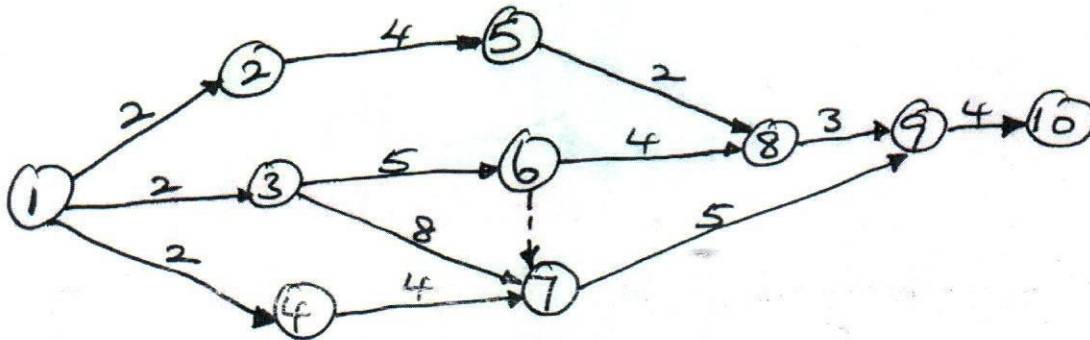


Fig. 1

QUESTION 4 (20 marks)

- a. State any five (5) sources of project finance. (5 marks)
- b. State any five (5) project financial appraisal methods. (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)

QUESTION 5 (20 marks)

A project consists of five activities as shown in the PERT network Fig. 2. 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.

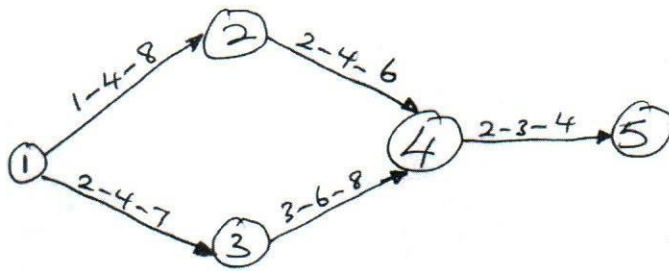


Fig. 2

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