

- 8 Identified activities, their durations and proposed unskilled labour strength for construction of a box culvert are given below.

Activities	Duration (Days)	Unskilled Labour (Nos)
1) Excavation for foundation	4	08
2) Mass concrete for foundation	2	10
3) RR Masonry	15	08
4) Back filling around foundation	5	05
5) Form work for concrete capping beams and deck	2	02
6) Placing reinforcement for beam and deck	3	03
7) Grade 20 concrete for capping beams and deck	1	10
8) Fixing pre-cast guard stones	2	04
9) Cement Plastering in exposed area	6	04
10) Turfing in embankments	4	05

- a) Produce Activity on Arrow (AOA) diagram for the above box culvert construction. (6 marks)
- b) Derive duration for completion of this construction by analyzing AOA network produced in a) above. (6 marks)
- c) Prepare labour histogram for the above box culvert construction. (4 marks)
- d) Briefly explain the requirement of a resource plan for the construction project. (4 marks)
- 9 a) i) Give five basic functions in management. (5 marks)
- ii) Select a function given in a) i) above and identify the role of project manager in this function. (5 marks)
- b) Discuss the roles of the contractor during construction stage of the project in;
- i) quality management (5 marks)
- ii) safety management. (5 marks)