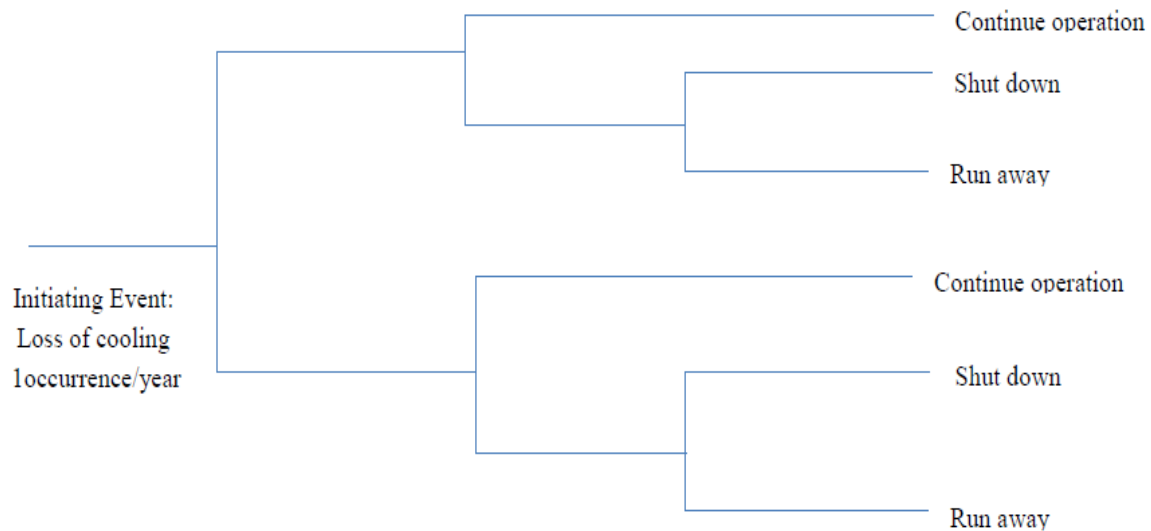


Test 1

Answer All Question.

- a) Differentiate between qualitative and quantitative risk assessment (6 marks)
- b) Structure of Event Tree Analysis (ETA) due to loss of cooling event at CSTR reactor is given below. The reactor is equipped with high temperature alarm and temperature controller.

Safety function	High Temperature Alarm	Operator Re-starts Cooling	Operator Shut down Reactor
Identifier	B	C	D
Failures/demand	0.01	0.25	0.25



- i- Determine the probability of success and failure of safety function for each branch.
- (12 Marks)
- ii- Determine the probability of occurrence/year for shutdown and runaway due to the loss of cooling.
- (2 Marks)