

MGT 3083 Project Management

Answer all Questions

Time: 3 hours

- Q1. The Frontline Manufacturing Company is considering the purchase of two different types of machines to manufacture auto speed gauges, one of the many products it produces for industrial markets. The two machines are alike in the following ways: each requires an initial investment of Rs. 1,500,000, will last for five years after which the salvage value will be zero and has sufficient capacity to meet the projected steady demand. The main difference between the two machines is the timing and amount of operating cash flows. Machine A's operating cash costs would start out high and then decrease in subsequent years. For machine B, constant operating cash costs are predicted. The incremental net cash flows (revenues minus operating cash costs) for the two machines are expected to be as follows:

After tax Cash Flow per year						
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Machine A.	15,00,000	2,00,000	4,00,000	4,00,000	6,00,000	11,00,000
Machine B	15,00,000	5,00,000	5,00,000	5,00,000	5,00,000	5,00,000

The company needs to determine which of the two machines it should buy to manufacture speed gauges. Unsure of which method of evaluation to use, the Deputy Managing Director asks that calculations be made for the following methods:

- Payback period (assume, for this calculation only, that cash flows are spread evenly throughout the year). (04 Marks)
- Accounting rate of return. (04 Marks)
- Internal rate of return. (04 Marks)

d) Net present value at 10% cost of capital.

(04 Marks)

e) Net present value at 12% cost of capital.

(04 Marks)

f) Why does the net present value method yield different decisions at the two different discount rates? Does the internal rate of return method exhibit the same phenomenon?

(04 Marks)

g) Comment on the usefulness of each of the above Methods for choosing between the two machines.

(04 Marks)

(Total 28 Marks)

Q2.

a) *"One of your goals in estimating activity duration is to define the activity to a level of granularity so that your estimates have a narrow variance – that is, the estimate is as good as you can get it at the planning stage of the project".*

Identify and explain the causes of variation in the actual activity duration of a project.

(05 Marks)

b) *"The duration of an activity is influenced by the amount of resources scheduled to work on it. We say influenced because there is not necessarily a direct linear relationship between the amount of resource assigned to an activity and its duration".*

Based on the above statement, explain tools you can use to help you schedule people for the project activities.

(06 Marks)

c) *"Controls are actions taken as a result of reports. Once project work is underway, you want to make sure that it proceeds according to plan. To do this, you need to establish a reporting system that keeps you informed of the many variables that describe how the project is proceeding as compared to the plan."*

Based on the above statement, explain the important characteristics a reporting system should have.

(06 Marks)

(Total 17 Marks)

Q3. Many research findings have suggested that the quality of secondary education depends on the quality of primary education. Primary education and secondary education are not alternative investment choices. As Sri Lanka's first Minister of Education pointed out almost seventy years ago good quality primary education is the foundation for good quality secondary education. The quality of primary education would be substantially enhanced if it began to be treated by education policymakers and planners as a comprehensive and multi-faceted stage of education rather than as a subject of education. This has implications for funding, for accountability, for training, for professional support and for research. Education is one of Sri Lanka's gems. Free education remains 'the pearl of great price'. And primary education remains the 'many splendored gem that we seek'. In 2011 the World Bank subtitled its comprehensive report on Transforming School Education in Sri Lanka 'from cut stones to polished jewels' to refer to the value that a transformed and upgraded stage of secondary education system could add to the 'cut stone' graduates from primary education. The transformation of primary education in Sri Lanka, from a subject of education to a valued foundational stage of education, distinctive in its right, could begin to produce not only cut stones but 'well cut' stones. The subtitle of the World Bank's project to transform school education in Sri Lanka might then justifiably be revised to read: 'from well-cut stones to polished jewels'.

Based on the above view, prepare a logical framework to increase grade 5 pupils to higher schools for an identified area of your choice.

(Total 15 Marks)

Q4.

- a) *"Participatory rural appraisal (PRA) is an approach (and family of methodologies) for shared learning between local people and outsiders to enable development practitioners, government officials, and local people to plan together appropriate interventions."*

In view of the above statement, explain the important tools used in the PRA field practice obtain required data and information.

(Marks 07)

b)

Assume that you have been appointed as a Project Officer to work for a reputed Non-Government Organization (NGO) mainly involving in Village Development Projects (VDP). In order to find out the problems at the village level, the organization has

assigned you as a facilitator to conduct a Participatory Rural Appraisal (PRA) analysis training programme focusing on the key issues in an identified village. The village people including the Grama Seva Officer, Development Officer, representatives of the various societies working for the village and the members from the sports clubs and cultural societies in the village have been summoned to conduct the PRA analysis training programme in the community service centre of the village. The total number of participants is 60 of which 35 were female and 25 were male.

At the opening of the practice, you explained about the PRA tools and its usage in detail and facilitated them to prepare the outcome of the tools and finally the participants were requested to propose the key problems they encounter during the recent past.

The participants identified and proposed following five problems.

1. Flood
2. Violence against women
3. Child abuse
4. Unemployment
5. Usage of drugs
6. Poor condition of roads.

As you want to prioritize the key issues on the order of priority with the consent of all participants, you requested them to do a Pairwise ranking tool to prioritize the issues.

When you call for the opinion among the participants for the proposed first problem - flood 55 participants proposed that, flood is a serious problem compared to violence against women, 51 participants proposed that, flood is a serious problem compared to child abuse, 53 participants proposed that, compared to flood, unemployment is a serious problem, 49 participants proposed that, compared to flood, usage of drugs is a serious problem, and 56 participants proposed that, flood is a serious problem compared poor condition of roads.

When you call for the opinion among the participants for the proposed second problem - violence against women, 51 participants proposed that, violence against women is a serious problem compared to child abuse, 54 participants proposed that, compared to violence against women, unemployment is a serious problem, 50 participants proposed that, compared to violence against women, usage of drugs is a serious problem, and 56 participants proposed that, violence against women is a

serious problem compared poor condition of roads.

When you call for the opinion among the participants for the third proposed problem, 54 participants proposed that, compared to unemployment, child abuse is a serious problem, 50 participants proposed that, compared to child abuse, usage of drugs is a serious problem, and 55 participants proposed that, child abuse is a serious problem compared poor condition of roads.

When you call for the opinion among the participants for the unemployment problem, 50 participants proposed that, compared to unemployment, usage of drugs is a serious problem, and 51 participants proposed that, unemployment is a serious problem compared poor condition of roads.

When you call for the opinion among the participants for usage of drugs, 55 participants proposed that usage of drugs is a serious problem compared poor condition of roads.

i. Based on the above information you are required to prepare the pairwise ranking table and list the key issues on the order of priority considering the opinion of the majority of the participants participated in the PRA analysis.

(Marks 10)

ii. If you get same value for two or more problems identified, how will you arrive at a final ranking? Justify your answer with the help of pairwise ranking table.

(Marks 03)

(Total 20 Marks)

Q5. BACKGROUND

The Concord Cinema is a privately owned theatre on the centre of a capital city. The seating capacity of the theatre is 600 people: 300 downstairs in the stalls and 300 upstairs in the circle.

All artistic decisions are based on the recommendations of Concord's fulltime Artistic Director, in consultation with the owner and a small committee which includes representatives from local councils, sponsors etc. Concord employs a small group of actors, usually on short-term contracts, stage hands, scenery builders etc., and a number of administrative staff for the box office, finance, catering etc.

Concord has acquired a nearby building and it is planned to turn it into a small studio theatre, with about 60 seats, to encourage experimental plays, young performers, talented amateurs, fringe productions etc.

The table below shows a list of the required activities, with their immediate predecessors, estimated Human resources and durations to complete the above purpose.

Activity	Preceding activity	Duration (days)	No. of men
A	-	3	9
B	-	4	3
C	B	3	4
D	A, C	2	3
E	A	4	9
F	E	5	4
G	E	3	3
H	G	2	5
I	A, D, F	2	6
J	E, G, I	2	7
K	E, G, I	4	9
L	H, K	5	5
M	J, L	2	10

- a) Draw up the network diagram and identify the critical path and the normal duration of the project.
(12 marks)
- b) Based on the above information, calculate the total human resource required for the project.
(02 marks)
- c) If the human resource availability is 12 men per day, how would you adjust the activities to complete the project on normal duration?
(06 marks)

(Total 20 marks)