SOMAIYA VIDYAVIHAR UNIVERSITY

Semester: Jan – Mar 24 **Maximum Marks: 50** **Examination: ETE Exam** **Date:26/3/2024** **Duration: 3 Hrs.**		
Programme code: MBA (Finance Major) **Programme: 01**	**Class:** SY	**Semester/Trimester: VI**
College: K. J. Somaiya Institute of Management	**Name of the department/Section/Center:** **Finance and Law**	
Course Code: 217P01C604	**Name of the Course: Project Finance and Appraisal**	
Instructions: 1. Question No.1 is compulsory for 10 marks. 2. Solve any **TWO** from the remaining 20 marks each.		

Question No.		Max. Marks
1	Consider the following two projects A and B being planned by Alpha Projects Limited: **Year** / **Project A** / **Project B** 0 / -1680 / -1680 1 / 1400 / 140 2 / 700 / 840 3 / 140 / 1510 IRR / 22.79% / 16.92% MIRR / 15.17% / 15.55% The company's cost of capital is 9%. Required: 1. Compute the NPV of both projects. 2. What are the drawbacks of IRR criteria? 3. Is there a ranking conflict? If so, what is the reason for it? 4. What is the solution of ranking conflict? 5. What is the cross-over rate (Fisher's intersection point)? What does the point signify? How do the NPV and IRR behave above and below this point? Hint: The cross-over rate is 10% 6. What is MIRR? Does MIRR solve the problem created by IRR in case of ranking conflict? 7. Calculate the payback period of both projects.	10
2	ABC Chemicals Ltd is an established chemical company engaged in the manufacture of resins & certain special compound chemicals. The company now wants to venture into manufacture of agrochemicals since the Government has come up with special subsidy scheme for the same. In order to take advantage of the scheme & increased market demand of the product, a detailed analysis was carried out to understand feasibility of the project. Following details were derived from the analysis for 5 years: **Assets Required** / **Rs. Lakhs** Land / 1.91 Building / 51.27 Plant & Machinery / 346.08 Current Assets / 146.19 **Total** / **545.45** **Means Of Finance** / **Rs. Lakhs** Promoters Equity / 90.00 Public Issue / 269.00 Long Term Loan / 50.00 Working Capital Loan / 106.45 Government Grant / 30.00	20

Total	**545.45**

(Rs. Lakhs)

Particulars	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Net Sales	519.00	605.50	692.00	692.00	692.00
Expenses	242.64	241.70	228.88	321.46	299.55
Raw Material	59.34	110.86	173.12	81.85	82.16
Consumable Stores	34.67	40.29	45.78	45.92	69.12
Power & Fuel	4.00	4.40	4.84	5.32	5.85
Admin Expenses	16.19	18.89	21.59	21.59	21.59
S&D Expenses					

Other information given is as follows:

1. Term Loan to be repaid in 5 equal installments at the end of each year & will carry an interest rate of 20% p.a.
2. Current Assets at the end of Year 1 would be Rs.170.29 lakhs. The same at the end of Years 2, 3 & 4 would be same at Rs.194.49 lakhs – the entire current assets would be realized at the end of Year 5
3. The Working Capital Loan at the end of Year 1 would be Rs.124 lakhs. The same at the end of Years 2, 3 & 4 would be Rs.141.60 lakhs
4. Interest on Working Capital Loan is 20% p.a. & will be repaid at the end of Year 5
5. Building & Plant, & Machinery would be depreciated on the Straight Line Method. Net salvage value of the Building would be Rs.25.67 lakhs & that of Plant & Machinery would be Rs.138.73 lakhs at the end of 5 years
6. Land would be sold at book value at the end of Year 5
7. Government Grant received is to be reduced from the value of plant & machinery as per accounting policies at the beginning of the project
8. ABC Ltd would lose revenue of Rs.10 lakhs per year from existing business by investing in the above project
9. Tax rate to be considered is 30%
10. The company has a cost of capital of 15%, whereas Internal Rate of Return of the project is 23.44%

The company has approached you as a consultant to prepare a report on feasibility of the project which should cover the following:

a) Projected cash flow statement from Long-Term Funds point of view

b) Following values based on cash flows from a Long-Term Funds point of view

- Net Present Value
- Profitability Index

c) Debt Service Coverage Ratio

d) Possible Risks associated with the project

e) Final Recommendation

3 Fred Ridgeway has given the responsibility of managing a training and development program. He knows the EST and LST (both in months), and the total cost for each activity. This information is given in table below: 20

Activity	EST	LST	Duration	Total cost
A	0	0	6	10000
B	1	4	2	14000
C	3	3	7	5000
D	4	9	3	6000
E	6	6	10	14000
F	14	15	11	13000
G	12	18	2	4000
H	14	14	11	6000
I	18	21	6	18000
J	18	19	4	12000
K	22	22	14	10000
L	22	23	8	16000
M	18	24	6	18000

(a) Using the ESTs, determine the Fred's total monthly budget.

(b) Using LSTs, determine the Fred's total monthly budget.

(c) Under both schedules, which month is the high budget allocation done?

Fred Ridgeway's project has progressed over the past several months and is now the end of month 16. Fred would like to know the project's current status with regard to schedule and budget by developing an appropriate table. The relevant data are shown in the following table.

Activity	% completed	Actual cost

A	100	13000
B	100	12000
C	100	6000
D	100	6000
E	60	9000
F	10	800
G	80	3600
H	15	375

Assume that the activities not shown in the table have not yet started and have incurred no cost to date. All activities follows their earliest time schedules.

4 Answer any **two**

(A) Explain various modes of financing for startups. 10

(B) On November 15, 2023, the Department of Energy awarded Telestar a Rs.475000 contract for developing and testing two waste treatment plants. Telestar had spent the last two years developing waste treatment technology under their own R&D activities. This new contract would allow Telestar to "break into a new field"- waste treatment. 10

The contract was negotiated at a firm-fixed price. Any cost overruns would have to be incurred by Telestar. The original bid was priced out at Rs.847000. Telestar's management, however, wanted to win this one. The decision was made that Telestar would buy in at Rs.475000 so they could at least get their foot into the new marketplace.

The original estimate of Rs.847000 was very rough because Telestar did not have any good man-hour standards in the area of waste treatment on which to base their man-hour projections. Corporate management was willing to spend up to Rs.400000 of their own funds to compensate the bid of Rs.475000.

By February 15, 2024, costs were increasing to such a point where overruns would be occurring well ahead of schedule. Anticipated costs to completion were now Rs.943000. The project manager decided to stop all activities in certain functional departments. However the Structures Manager strongly opposed the closing out of work order prior to the testing of the first plant's high-pressure pneumatic and electrical systems.

Structures manager: "You are running a risk if you close out this work order. How will you know if the hardware can withstand the stresses that will be imposed during the test? After all, the test is schedule for next month and I can probably finish the analysis by then."

Project manager: "I understand your concern, but I cannot risk a cost overrun. My boss expected me to do the work within cost. The plant design is similar to one that we have tested before, without any structural problems being detected. On this basis I consider your analysis unnecessary."

Structures manager: "Just because two plants are similar does not mean that they will be identical in performance. There can be major structural deficiencies."

*Project manager: "*I guess the risk is mine."

Structures manager: "Yes, but I get concerned when a failure can reflect on the integrity of my department. You know, we are performing on schedule and within the time and money budgeted. You are setting a bad example by cutting off our budget without any real justification."

Project manager: "I understand your concern, but we must pull out all the stops when overrun costs are inevitable."

Structures manager: "There is no question in my mind that this analysis should be completed. However, I am not going to complete it on my overhead budget, I will reassign my people tomorrow. Incidentally, you had better be careful; my people are not very happy to work for a project that can be canceled immediately. I may have trouble getting volunteers next time."

Project manager: "Well, I am sure you will be able to adequately handle any future work. I will report to my boss that I have issued a work stoppage order to your department."

During the next month's test, the plant exploded. Post-analysis indicated that the failure was due to a structural deficiency.

1. Discuss the error in the project.

C You are given the following particulars in respect of HHT Company: 10

Sales price per unit	Rs.15
Quantity sold	900000
Variable cost per unit	Rs.6
Fixed cost	3500000
Depreciation	2000000
Tax rate	25%
Life of project	6 years
Initial investment	12000000
Scrap value	400000
Cost of capital	16.5%
Working capital requirement	1500000

With respect to details of above investment proposal answer the following questions:

1. Before project start HHT paid Rs.20000 to one of the marketing agency to do preliminary survey for finding out the feasibility of project. Where HHT Company should consider Rs.20000 in project cash flow calculation?
2. By keeping in mind which rule of project cash flow, HHT Company should not take into consideration interest on loan in project cash flow calculation?
3. Previously Fixed cost calculated by HHT Company was Rs.4500000 but later on it get revised to Rs.3500000 due to the reason that Rs.1000000 was attributed to project which company anyways need to incur even if company reject project. Do you agree that company should not consider Rs.1000000 in project cash flow calculation?
4. What treatment we should give to the opportunity cost and product cannibalization in project cash flow calculation?
5. The result of sensitivity analysis on NPV for the following variables are given below:

Deviation from Base	Investment	COC	Units	Selling Price	Variable Cost	Fixed Cost
-20%	3263979	2202769	-3554308	-6499833	3809504	2773116
-10%	2063979	1509294	-1345165	-2817927	2336741	1818547
0%	863979	863979	863979	863979	863979	863979
20%	-336021	262567	3073123	4545885	-608783	-90589
10%	-1536021	-298752	5282266	8227791	-2081546	-1045157
Slope	12000000	6249769	22091436	36819060	14727624	9545682

Analyze and interpret the above output.

6. Explain and interpret the NPV breakeven point for the following variables:
   - Selling price (Rs.14.65)
   - Variable cost (Rs.6.35)
   - Sales volume (Rs. 864802)
7. HHT estimated that project might pass through worst and best possible scenario as follow:

Input Variables	Base Case	Worst Case	Best Case
Probability	0.5	0.25	0.25
Sales price per unit	15	12	18
Quantity sold	900000	800000	1000000
Variable cost per unit	6	8	4
Fixed cost	3500000	3700000	3300000
Depreciation	2000000	2500000	1500000
Tax rate	25%	30%	20%
Life of project	6	6	6
Initial investment	12000000	12500000	11500000
Scrap value	400000	300000	600000
Cost of capital	16.50%	18%	12%
Working capital requirement	1500000	1600000	1400000

Analyze and interpret the output given below and suggest your recommendation:

Scenario	Probability	NPV
Best	0.25	17027069
Base	0.5	863979
Worst	0.25	-12700959
Expected NPV		1513517
Standard Deviation		10530496
Coefficient of Variation		6.958
Probability of Loss		44.29%