<Project and Infrastructure Finance>

<Subject code: DM-514

Trimester – V, End-Term Examination, Dec. 2016

<PGDM

Time allowed: 2-1/2 Hours

Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means.** In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	3*5 = 15
B	2 out of 3 (Long Questions)	10 Marks each	2*10 = 20
C	Compulsory Case Study	15 Marks	15
		Total Marks	**50**

SECTION – A

A1. How and why project finance create value?

A2. Explain the difference between Financial and economic feasibility in PPP arrangement.

A3. Force Majeure is a generic term for events outside the control of the contracting parties. What do the parties do to protect themselves from FM events?

A4.. The aim of the Reshaping Health Services Project (RHS) in the UK is to deliver a new hospital and redesign the primary and social care services integrated in the NHS (National Health System) Plan, for a total of 1.287 beds and 158.669 m2. The project was developed under a PFI scheme for a 40-year period, and the funding was based on bonds. Project Finance Initiative (PFI) uses private money for major public sector capital projects. The private company builds and owns the facility, which is then leased back to the state, in exchange for regular repayments.

The methodology used to calculate the NPV was the DCF analysis. A 6 % discount rate was used, in accordance with the Treasury Green Book. The value added tax (VAT) was excluded from the costs, and the irrecoverable VAT was only considered within an affordability analysis.

The retained risks for public sector and for project through PFI are pounds 106.1 million and pounds 28.3 million respectively whereas raw PSC is pounds 3406.6 million. The shadow bid for

the similar project is pounds 3422.3 million. As expected, the NPV of the retained risk in the PSC option is higher than in the PFI because the public sector has to address all project risks, while in the PPP option, some risks are transferred to the private sector.

Risk calculation in the UK is performed under specific guidelines. In this case, it was performed in accordance with the Department of Health's generic economic model, which basically corresponds to identifying and assessing all possible risks. The model also included a sensitivity analysis for some key variables, such as capital cost or life-cycle cost, to determine the robustness of the calculation.

What is your recommendation on value proposition in this case? If your answer is positive, what is the overall advantage of the Project Finance Initiative (PFI) model over the PSC?

A5. Explain the variables affecting call and put prices in real options.

SECTION – B

B1. Shortage of electricity is an impediment to economic growth in India. To build the required Power Stations, Indian government depends upon the capital and expertise of foreign developers. An Independent Power Project confronts many risks in project finance arrangement. **Systematically** identify all the possible risks and risk allocation problems associated with an independent power project and suggest ways of addressing these issues.

B2. A company has the opportunity to build a new power project in a foreign country at a cost of $1100 million. Net cash flows are $100mm in the first year of operation.Net cash flows in the second year of operation depend upon whether the government sponsors a link to bypass a transmission "bottleneck". There is a 50% probability the government will intervene. This is an example of political risk. If the link goes ahead, demand for power from the new plant will be low and net cash flow will be $80 mm. If the link does not go ahead, demand for power from the new plant will be high and net cash flow will be $125 mm. Similar uncertainty surrounds Year 3 net cash flows. Cash flows beyond Year 3 are perpetual. If risk-free rate of interest is 6% and cost of capital is 10%, what is amount of contingent net present value**?**

B3. The sponsors of copper mining project desire to compute debt capacity based on the DSCR of 1.6. Market price of copper hovers around $3.75 per pound with estimated extraction of 130 million pounds. Cash operating expenses is around $ 2.00 per pound with income tax rate of 33%. Currently lenders are willing to extend loan for not more than 12 years with 3 years moratorium at pre-tax rate of 12% per annum. Annual Growth rate of cash revenues and of cash expenses are 5% and 4% respectively.

SECTION - C

Case study – (15 marks)

Estimated project economics for Deepwater Gunashli Fields

Project Economics (Per barrel)	
Estimated Oil prices	$15

Production cost	$4
Transportation cost	$3
Cost recovery to sponsors (50% of gross profit and is tax deductible)	
Country taxes	25%
Share of profit to sponsors as per profit sharing agreement	70%

Phase of the project	**Year**	**Average daily production (barrels of oil)**	**Capital expenditure ($ millions)**
Construction	2016		$1000
Construction & operation	2017	100,000	$1000
Construction & operation	2018	300,000	$1100
Construction & operation	2019	500,000	$1000
Construction & operation	2020	700,000	$1500
Construction & operation	2021	700,000	$1500
Construction & operation	2022	700,000	$1000
Operation	2023	700,000	
Operation	2024	700,000	
Operation	2025	700,000	
Operation	2026	600,000	
Operation	2027	600,000	
Operation	2028	600,000	
Operation	2029	500,000	
Operation	2030	500,000	
Operation	2031	500,000	
Operation	2032	400,000	
Operation	2033	400,000	
Operation	2034	400,000	
Operation	2035	200,000	
Operation	2036	100,000	

Project with limited recourse is financed with a gearing of 60% at a fixed rate of 12% per annual and remaining by equity. Ignore depreciation for the time being.

Compute the financial feasibility at 15% rate of return.