

K. J. SOMAIYA INSTITUTE OF MANAGEMENT STUDIES AND RESEARCH

Program: MFM Sem IV
Subject: Infrastructure Project Finance
(End Term Examination)

Maximum Marks: 50

Duration: 3 Hrs

Date: 11 April 2019

Notes:

1. Question No. 1 is compulsory.

2. Answer requisite mentioned questions from Question 2 and Question 3.

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Question 1

(10 Marks)

Read the following paragraph and answer the Questions given Below (Any 2 each 5 marks= 10 Marks)

Introduction

Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country. Infrastructure sector includes power, bridges, dams, roads and urban infrastructure development. In 2018, India ranked 44th out of 167 countries in World Bank's Logistics Performance Index (LPI) 2018.

Investments

India has a requirement of investment worth Rs 50 trillion (US\$ 777.73 billion) in infrastructure by 2022 to have sustainable development in the country. India is witnessing significant interest from international investors in the infrastructure space. Some key investments in the sector are listed below.

- Private equity and venture capital (PE/VC) investments in the infrastructure sector reached US\$ 1,827 million during January-November 2018
- Indian infrastructure sector witnessed 91 M&A deals worth US\$ 5.4 billion in 2017

Government Initiatives

The Government of India is expected to invest highly in the infrastructure sector, mainly highways, renewable energy and urban transport.

The Government of India is taking every possible initiative to boost the infrastructure sector. Some of the steps taken in the recent past are being discussed hereafter.

- Announcements in Union Budget 2018-19:
 - Massive push to the infrastructure sector by allocating Rs 5.97 lakh crore (US\$ 92.22 billion) for the sector.
 - Railways received the highest ever budgetary allocation of Rs 1.48 trillion (US\$ 22.86 billion).
 - Rs 16,000 crore (US\$2.47 billion) towards Sahaj Bijli Har Ghar Yojana (Saubhagya) scheme. The scheme aims to achieve universal household electrification in the country.

- Rs 4,200 crore (US\$ 648.75 million) to increase capacity of Green Energy Corridor Project along with other wind and solar power projects.
- Allocation of Rs 10,000 crore (US\$ 1.55 billion) to boost telecom infrastructure.
- A new committee to lay down standards for metro rail systems was approved in June 2018. As of August 2018, 22 metro rail projects are ongoing or are under construction.
- Rs 2.05 lakh crore (US\$ 31.81 billion) will be invested in the smart cities mission. All 100 cities have been selected as of June 2018.
- The Government of India is working to ensure a good living habitat for the poor in the country and has launched new flagship urban mission, the Pradhan Mantri Awas Yojana (Urban). In May 2018, construction of additional 150,000 affordable houses was sanctioned under Pradhan Mantri Awas Yojana (PMAY), Urban.

Achievements by GOI:

- The total national highways length increased to 122,434 kms in FY18 from 92,851 kms in FY14.
- India's rank jumped to 24 in 2018 from 137 in 2014 on World Bank's Ease of doing business - "Getting Electricity" ranking.
- Energy deficit reduced to 0.7 per cent in FY18 from 4.2 per cent in FY14.
- Number of airports has increased to 102 in 2018.

Questions:

- According to you, why the India's ranking improved to 44th out of 167 countries in World Bank's Logistics Performance Index (LPI) in 2018.
- What are the reason for reduction in Energy deficit to 0.7 per cent in FY18 from 4.2 per cent in FY14?
- Why there is massive push given to the infrastructure sector by allocating US\$ 92.22 billion?
- Why emphasis given to smart cities by Government?

Question 2. Answer any TWO

(2x10 = 20 Marks)

- A company with a cost of capital of 14% is considering TWO Project-1 and Project-2. The details pertaining to these projects are given below:-

Particulars	Project-1 Mini Thermal Power Plant	Project-2 Solar Power Plant
Initial Investment (Rs.)	18,000,000	16,000,000
Cash Inflows (Rs.)		
Year 1	4,000,000	10,000,000
Year 2	5,000,000	9,000,000
Year 3	7,000,000	4,000,000
Year 4	10,000,000	3,000,000
Year 5	11,000,000	2,000,000

Select the most appropriate project based on Payback Period, Discounted Payback, NPV and Profitability Index methods.

- b. Prepare a detailed project report for a Project of Your Choice from the following sector or any other sector: Mumbai or Delhi International Airport under PPP, Bandra- Worli Sea Link Project, Waste management Project in Mumbai City, Mumbai Metro Rail Network Project, Delhi- Gurgaon Expressway Project.
- c. Explain Risk Management Process with risk response measures in detail. What are the types of Risks in Project Financing?

Question 3. Answer any FOUR

(4 x 5 = 20 Marks)

- a. Explain the Technological appraisal of the Project. Explain with suitable example.
- b. What is SPV (Special Purpose Vehicle)? What is the need of SPV in Project Finance?
- c. Explain the Social Cost benefit analysis for the project taking a typical new railway project or a dam project.
- d. Explain Concessionary Financing instruments?
- e. Following data available about actual sales quantities for 9 years:

Year	1	2	3	4	5	6	7	8	9
Sales (Rs. '000)	46	44	40	45	52	66	72	82	79

- Find the forecast for year 10 using 'TWO YEARS' as well as 'THREE YEARS' moving average. Which of the two forecast is more reliable on the basis of 'Mean Squared Error' (MSE) criterion?
- f. Explain Sensitivity Analysis using Tornado Diagram.

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Present Value Factor (PVF) Table													
rate of interest r %													
Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026

Present Value Factor (PVF) Table													
rate of interest r %													
Periods (n)	14%	15%	16%	17%	18%	19%	20%	24%	28%	32%	36%	40%	
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1	0.877	0.870	0.862	0.855	0.847	0.840	0.833	0.806	0.781	0.758	0.735	0.714	
2	0.769	0.756	0.743	0.731	0.718	0.706	0.694	0.650	0.610	0.574	0.541	0.510	
3	0.675	0.658	0.641	0.624	0.609	0.593	0.579	0.524	0.477	0.435	0.398	0.364	
4	0.592	0.572	0.552	0.534	0.516	0.499	0.482	0.423	0.373	0.329	0.292	0.260	
5	0.519	0.497	0.476	0.456	0.437	0.419	0.402	0.341	0.291	0.250	0.215	0.186	
6	0.456	0.432	0.410	0.390	0.370	0.352	0.335	0.275	0.227	0.189	0.158	0.133	
7	0.400	0.376	0.354	0.333	0.314	0.296	0.279	0.222	0.178	0.143	0.116	0.095	
8	0.351	0.327	0.305	0.285	0.266	0.249	0.233	0.179	0.139	0.108	0.085	0.068	
9	0.308	0.284	0.263	0.243	0.225	0.209	0.194	0.144	0.108	0.082	0.063	0.048	
10	0.270	0.247	0.227	0.208	0.191	0.176	0.162	0.116	0.085	0.062	0.046	0.035	
11	0.237	0.215	0.195	0.178	0.162	0.148	0.135	0.094	0.066	0.047	0.034	0.025	
12	0.208	0.187	0.168	0.152	0.137	0.124	0.112	0.076	0.052	0.036	0.025	0.018	
13	0.182	0.163	0.145	0.130	0.116	0.104	0.093	0.061	0.040	0.027	0.018	0.013	
14	0.160	0.141	0.125	0.111	0.099	0.088	0.078	0.049	0.032	0.021	0.014	0.009	
15	0.140	0.123	0.108	0.095	0.084	0.074	0.065	0.040	0.025	0.016	0.010	0.006	
16	0.123	0.107	0.093	0.081	0.071	0.062	0.054	0.032	0.019	0.012	0.007	0.005	
17	0.108	0.093	0.080	0.069	0.060	0.052	0.045	0.026	0.015	0.009	0.005	0.003	
18	0.095	0.081	0.069	0.059	0.051	0.044	0.038	0.021	0.012	0.007	0.004	0.002	
19	0.083	0.070	0.060	0.051	0.043	0.037	0.031	0.017	0.009	0.005	0.003	0.002	
20	0.073	0.061	0.051	0.043	0.037	0.031	0.026	0.014	0.007	0.004	0.002	0.001	
25	0.038	0.030	0.024	0.020	0.016	0.013	0.010	0.005	0.002	0.001	0.000	0.000	
30	0.020	0.015	0.012	0.009	0.007	0.005	0.004	0.002	0.001	0.000	0.000	0.000	