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MANIPAL INSTITUTE OF TECHNOLOGY
 Manipal University, Manipal – 576 104



END SEMESTER MAKE-UP EXAMINATION
SUBJECT: ESSENTIALS OF MANAGEMENT & ENGINEERING ECONOMICS
(HSS 401/302)

REVISED CREDIT SYSTEM
(29/05/2014)

Time: 3 Hours.

MAX.MARKS: 50

Instructions to Candidates:

- ❖ Answer **ANY FIVE** questions.
- ❖ INTEREST TABLE is provided in the last page. (else use formula)
- ❖ Missing data, if any, may be suitably assumed & justified.

PART A

- 1A)** Sketch systems approach to management. **(03)**
- 1B)** Sketch a wide span and narrow span. List any two advantages of each. **(02)**
- 1C)** Write the three different skill sets required at three different levels of an organization. **(03)**
- 1D)** Fill in the blank questions: **(02)**
- i) _____ is essentially about understanding choices organizations make in order to achieve specific goals and objectives to fulfill a firm's mission and vision.
- ii) The sender _____ the message, translating the idea into words.
- 2A)** Who is a leader? What are the major characteristics a follower looks in a leader? List the various theories of leadership. **(03)**
- 2B)** What are Maslow's hierarchy of needs? Sketch them in a pyramid. **(02)**
- 2C)** Explain any two non-budgetary control devices. **(03)**
- 2D)** What are the three advantages a company has if job rotation is practiced? **(02)**
- 3A)** Sketch and explain how a choice of four strategies is made by using a 'portfolio matrix'. **(03)**
- 3B)** Why is poor delegation of authority often found to be the most important cause of managerial failure? **(02)**
- 3C)** Sketch to explain 'Communication Processes'. Explain the types of communication flow in an organisation. **(03)**
- 3D)** Draw the hierarchical order of types of plans. **(02)**

PART B

- 4A)** i) State the law of demand and law of supply. **(2+2)**
ii) List and explain any four determinants of demand.
- 4B)** Suppose you make Rs. 5000 monthly deposits to a tax-deferred retirement plan that pays interest at a rate of 12% per year compounded semi-annually. Compute the balance at the end of 10 years. **(03)**
- 4C)** Assets A1 and A2 have the capability of satisfactorily performing a required function. Asset A2 has an initial cost of Rs.32000 and an expected salvage value of Rs.4000 at the end of its 4 years of service life. Assets A1 costs 9000 less initially, with an economic life of 1 year shorter than that of A2; but A1 has no salvage value, and its annual operating costs exceed those of A2 by 2500. When the required rate of return is 6%, state which alternative is preferred using present worth method? **(03)**
- 5A)** Suppose a young newlywed couple is planning to buy a home two years from now which is expected to be Rs. 2,20,000 at the time of purchase (let's assume that the initial down payment at the time of purchase is 10% of the sales price, or Rs. 22,000), the couple decides to set aside some money in an account at the end of every month which can earn 6% interest (compounded monthly), determine the equal amount this couple must deposit each month to pay this initial down payment for the home. **(04)**
- 5B)** What is the equal payment series for 10 years that is equivalent to a payment series of Rs. 15,000 at the end of the first year, decreasing by Rs. 1,000 each year over 10 years? Interest is 6% compounded annually. **(03)**
- 5C)** A machine was purchased for 10 lakhs. It was estimated to have a useful life of 10 years and a salvage value of Rs. 1,00,000, due to unexpected development the machine was sold in the open market for Rs. 1,80,000 at the end of 8 years of its useful life. Determine how much 'sunk loss' or 'capital gain' has occurred if the asset is being depreciated according to Straight Line Method. **(03)**
- 6A)** An 8 year old asset may be replaced with either of the two new assets. Current data for each alternative are given below, using the cash flow approach of replacement analysis and an interest rate of 6% per year, determine the best course of action. **(04)**

Course of action	Current asset (Rs)	Challenger 1 (Rs)	Challenger 2 (Rs)
First cost	-	30000	54000
Defender trade	-	10500	7500
Annual cost	9000	4500	3600
Salvage value	1500	3000	1500
Life, years	5 yr	5 yr	5 yr

- 6B)** An engineering school has just completed a new engineering complex worth Rs.50,00,000. A campaign targeting alumni is planned to raise funds for future costs. The annual maintenance costs are estimated to be Rs. 2,00,000 per year and an additional expenses of renovations are estimated to be Rs. 5,00,000 at the end of every five years. Assuming that the school can create a trust fund that earns 6% interest annually, determine the amount required to be raised now in order to meet these costs of future (capitalized costs)?
- 6C)** You are going to buy a new car worth \$14,500. The dealer computes your monthly payment to be \$267 for 72 months' financing. What is the dealer's rate of return on this loan transaction?

7% Compound Interest Factors 7%									
n	Single Payment		Uniform Payment Series				Arithmetic Gradient		n
	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Compound Amount Factor	Present Worth Factor	Gradient Uniform Series	Gradient Present Worth	
	Find F Given P	Find P Given F	Find A Given F	Find A Given P	Find F Given A	Find P Given A	Find A Given G	Find P Given G	
	F/P	P/F	A/F	A/P	F/A	P/A	A/G	P/G	
1	1.070	.9346	1.0000	1.0700	1.000	0.935	0	0	1
2	1.145	.8734	.4831	.5531	2.070	1.808	0.483	0.873	2
3	1.225	.8163	.3111	.3811	3.215	2.624	0.955	2.506	3
4	1.311	.7629	.2252	.2952	4.440	3.387	1.416	4.795	4
5	1.403	.7130	.1739	.2439	5.751	4.100	1.865	7.647	5
6	1.501	.6663	.1398	.2098	7.153	4.767	2.303	10.978	6
7	1.606	.6227	.1156	.1856	8.654	5.389	2.730	14.715	7
8	1.718	.5820	.0975	.1675	10.260	5.971	3.147	18.789	8
9	1.838	.5439	.0835	.1535	11.978	6.515	3.552	23.140	9
10	1.967	.5083	.0724	.1424	13.816	7.024	3.946	27.716	10
11	2.105	.4751	.0634	.1334	15.784	7.499	4.330	32.467	11
12	2.252	.4440	.0559	.1259	17.888	7.943	4.703	37.351	12
13	2.410	.4150	.0497	.1197	20.141	8.358	5.065	42.330	13
14	2.579	.3878	.0443	.1143	22.551	8.745	5.417	47.372	14
15	2.759	.3624	.0398	.1098	25.129	9.108	5.758	52.446	15
16	2.952	.3387	.0359	.1059	27.888	9.447	6.090	57.527	16
17	3.159	.3166	.0324	.1024	30.840	9.763	6.411	62.592	17
18	3.380	.2959	.0294	.0994	33.999	10.059	6.722	67.622	18
19	3.617	.2765	.0268	.0968	37.379	10.336	7.024	72.599	19
20	3.870	.2584	.0244	.0944	40.996	10.594	7.316	77.509	20

<i>n</i>	Single Payment		Uniform Payment Series				Arithmetic Gradient		<i>n</i>
	Compound Amount Factor	Present Worth Factor	Sinking Fund Factor	Capital Recovery Factor	Compound Amount Factor	Present Worth Factor	Gradient Uniform Series	Gradient Present Worth	
	Find <i>F</i> Given <i>P</i>	Find <i>P</i> Given <i>F</i>	Find <i>A</i> Given <i>F</i>	Find <i>A</i> Given <i>P</i>	Find <i>F</i> Given <i>A</i>	Find <i>P</i> Given <i>A</i>	Find <i>A</i> Given <i>G</i>	Find <i>P</i> Given <i>G</i>	
	<i>F/P</i>	<i>P/F</i>	<i>A/F</i>	<i>A/P</i>	<i>F/A</i>	<i>P/A</i>	<i>A/G</i>	<i>P/G</i>	
1	1.060	.9434	1.0000	1.0600	1.000	0.943	0	0	1
2	1.124	.8900	.4854	.5454	2.060	1.833	0.485	0.890	2
3	1.191	.8396	.3141	.3741	3.184	2.673	0.961	2.569	3
4	1.262	.7921	.2286	.2886	4.375	3.465	1.427	4.945	4
5	1.338	.7473	.1774	.2374	5.637	4.212	1.884	7.934	5
6	1.419	.7050	.1434	.2034	6.975	4.917	2.330	11.459	6
7	1.504	.6651	.1191	.1791	8.394	5.582	2.768	15.450	7
8	1.594	.6274	.1010	.1610	9.897	6.210	3.195	19.841	8
9	1.689	.5919	.0870	.1470	11.491	6.802	3.613	24.577	9
10	1.791	.5584	.0759	.1359	13.181	7.360	4.022	29.602	10
11	1.898	.5268	.0668	.1268	14.972	7.887	4.421	34.870	11
12	2.012	.4970	.0593	.1193	16.870	8.384	4.811	40.337	12
13	2.133	.4688	.0530	.1130	18.882	8.853	5.192	45.963	13
14	2.261	.4423	.0476	.1076	21.015	9.295	5.564	51.713	14
15	2.397	.4173	.0430	.1030	23.276	9.712	5.926	57.554	15
16	2.540	.3936	.0390	.0990	25.672	10.106	6.279	63.459	16
17	2.693	.3714	.0354	.0954	28.213	10.477	6.624	69.401	17
18	2.854	.3503	.0324	.0924	30.906	10.828	6.960	75.357	18
19	3.026	.3305	.0296	.0896	33.760	11.158	7.287	81.306	19
20	3.207	.3118	.0272	.0872	36.786	11.470	7.605	87.230	20
21	3.400	.2942	.0250	.0850	39.993	11.764	7.915	93.113	21
22	3.604	.2775	.0230	.0830	43.392	12.042	8.217	98.941	22
23	3.820	.2618	.0213	.0813	46.996	12.303	8.510	104.700	23
24	4.049	.2470	.0197	.0797	50.815	12.550	8.795	110.381	24
25	4.292	.2330	.0182	.0782	54.864	12.783	9.072	115.973	25
26	4.549	.2198	.0169	.0769	59.156	13.003	9.341	121.468	26
27	4.822	.2074	.0157	.0757	63.706	13.211	9.603	126.860	27
28	5.112	.1956	.0146	.0746	68.528	13.406	9.857	132.142	28
29	5.418	.1846	.0136	.0736	73.640	13.591	10.103	137.309	29
30	5.743	.1741	.0126	.0726	79.058	13.765	10.342	142.359	30