THE OPEN UNVERSITY OF SRI LANKA
FACULTY OF ENGINEERING TECHNOLOGY
BACHELOR OF TECHNOLOGY – LEVEL 5
FINAL EXAMINATION 2005/2006
MEM 5336/MEU 3303 – MANAGEMENT FOR ENGINEERS
DATE : 28TH APRIL 2006
TIME : 0930 – 1230 HRS
DURATION : THREE HOURS

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THIS QUESTION PAPER HAS TWO SECTIONS, SECTION A AND B. ANSWER ANY 5 PARTS FROM SECTION A AND FIVE QUESTIONS FROM SECTION B.

SECTION A

1 (a) Describe the improvements suggested by Henry Gantt on the scientific Management theory which was first introduced by Frederick Taylor.

(b) Explain briefly the methods of communication in an organization.

(c) What methodology you will use to determine the price of a commodity?

(d) What are the advantages of casual employment from the point of view of the
(i) employer (ii) employee

(e) Explain "Inventory Control Módel" and their objectives. List out the models that you have studied.

(f) How does the "Critical Path Method" differs from "Programme evaluation and Review Technique"?

(g) How does the Quality circle operate?

(h) "AXILE" diagram is an useful guide to enter the transactions correctly. Explain.

SECTION B

2.(i) Identify and explain the major events that were associated with Industrial Revolution in Europe.

(ii) "Elton Mayo was one of the earliest pioneers who realized the importance of human motivation in management of a work place". Examine critically the above statement.

3. (i) Explain "Motivation".
(ii) Why is "Motivation" important in an organization?
(iii)Explain the way Abraham Maslow presented the theory of needs.

4. Explain the following.

(i) Cash book
(ii) Double entry system
(iii) Working capital
(iv) Trading, Profit and Loss account

Gunapala & Co. is in a buying and selling business. The following Trial Balance was extracted from books of accounts of Gunapala & Co. as at 31st December 1990.

	Dr.	Cr.
Stocks on 1.1.90	11,840	
Purchases	61,945	
Sales		94,610
Salaries and wages	19,310	
Rent and Rates	2,520	
Insurance	390	
Motor vehicles running expenses	3,320	
Office expenses	1,080	
Electricity	830	
Sundry expenses	1,570	
Land and Buildings	25,000	
Motor vehicles	9,000	
Furniture and fittings	1,750	
Debtors and creditors	19,480	8,655
Bank balance and cash in hand	2,410	
Drawings	6,000	
Capital		63,180
	166,445	166,445

1. Stock at 31st December 1990 Rs.14730
2. Accrued expenses: Rates Rs.300, Electricity Rs.320
3. Pre payment: Insurance 160
4. Provision for depreciation of motor vehicles should be 5% per annum, straight line method.
5. Provision for doubtful debts should be 5% of trade debtors.

Taking into consideration the above additional information you are required to prepare Trading, Profit and Loss account for the year ended 31st December 1990 and a Balance sheet as on this date.

5. (i) Why do we evaluate a project before we make a capital investment on it.

(ii) What is the common technique used in evaluating a capital project?

The following returns are expected from a project during the next 5 years.

Year	Return
1	2,000
2	4,000
3	6,000
4	5,000
5	3,000
	20,000

was

If the initial investment is Rs.13,500, calculate the Internal Rate of Return. (Refer table attached)

6. (i) Briefly explain "Industrial Disputes Act".

(ii) List out and explain the other methods of resolving conflicts between employee and employer.

7. Explain "Transportation Model".

A manufacturing firm ships its products from three plant to three warehouses. The supply capacities of plant, demand requirements at the wear houses and the transportation costs per tone are tabulated below.

Plant	Ware Houses		
	A	B	C
1	8	5	6
2	15	10	12
3	3	9	10

(i) Determine the basic solution to this problem using minimum cell cost method, or otherwise.

(ii) Also find the minimum transportation cost using shadow cost method, or otherwise.

8. (i) Why do we carry out Work Study exercise in a work place?

(ii) Mention the techniques used in Work Study. Briefly state and explain the techniques of Work Study.

(iii)Give a brief account on historical development of Work Study.

9. (i) Describe the following.

(a) Preventive maintenance
(b) Predictive maintenance

(ii) An organization which has a fleet of vehicles, calls upon you to implement a preventive maintenance programme for its fleet.

(a) What are the resources you would require?

(b) How would you plan to accomplish this task?

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TABLE A—PRESENT VALUE OF ONE UNIT—VALUE OF MONEY

Years Hence	1%	2%	4%	6%	8%	10%	12%	14%	15%	16%	18%	20%	22%	24%	25%	26%	28%	30%	35%	40%	45%	50%
1	0·990	0·980	0·962	0·943	0·926	0·909	0·893	0·877	0·870	0·862	0·847	0·833	0·820	0·806	0·800	0·794	0·781	0·769	0·741	0·714	0·690	0·667
2	0·980	0·961	0·925	0·890	0·857	0·826	0·797	0·769	0·756	0·743	0·718	0·694	0·672	0·650	0·640	0·630	0·610	0·592	0·549	0·510	0·476	0·444
3	0·971	0·942	0·889	0·840	0·794	0·751	0·712	0·675	0·658	0·641	0·609	0·579	0·551	0·524	0·512	0·500	0·477	0·455	0·406	0·364	0·328	0·296
4	0·961	0·924	0·855	0·792	0·735	0·683	0·636	0·592	0·572	0·552	0·516	0·482	0·451	0·423	0·410	0·397	0·373	0·350	0·301	0·260	0·226	0·198
5	0·951	0·906	0·822	0·747	0·681	0·621	0·567	0·519	0·497	0·476	0·437	0·402	0·370	0·341	0·328	0·315	0·291	0·269	0·223	0·186	0·156	0·132
6	0·942	0·888	0·790	0·705	0·630	0·564	0·507	0·456	0·432	0·410	0·370	0·335	0·303	0·275	0·262	0·250	0·227	0·207	0·165	0·133	0·108	0·088
7	0·933	0·871	0·760	0·665	0·583	0·513	0·452	0·400	0·376	0·354	0·314	0·279	0·249	0·222	0·210	0·198	0·178	0·159	0·122	0·095	0·074	0·059
8	0·923	0·853	0·731	0·627	0·540	0·467	0·404	0·351	0·327	0·305	0·266	0·233	0·204	0·179	0·168	0·157	0·139	0·123	0·091	0·068	0·051	0·039
9	0·914	0·837	0·703	0·592	0·500	0·424	0·361	0·308	0·284	0·263	0·225	0·194	0·167	0·144	0·134	0·125	0·108	0·094	0·067	0·048	0·035	0·026
10	0·905	0·820	0·676	0·558	0·463	0·386	0·322	0·270	0·247	0·227	0·191	0·162	0·137	0·116	0·107	0·099	0·085	0·073	0·050	0·035	0·024	0·017
11	0·896	0·804	0·650	0·527	0·429	0·350	0·287	0·237	0·215	0·195	0·162	0·135	0·112	0·094	0·086	0·079	0·066	0·056	0·037	0·025	0·017	0·012
12	0·887	0·788	0·625	0·497	0·397	0·319	0·257	0·208	0·187	0·168	0·137	0·112	0·092	0·076	0·069	0·062	0·052	0·043	0·027	0·018	0·012	0·008
13	0·879	0·773	0·601	0·469	0·368	0·290	0·229	0·182	0·163	0·145	0·116	0·093	0·075	0·061	0·055	0·050	0·040	0·033	0·020	0·013	0·008	0·005
14	0·870	0·758	0·577	0·442	0·340	0·263	0·205	0·160	0·141	0·125	0·099	0·078	0·062	0·049	0·044	0·039	0·032	0·025	0·015	0·009	0·006	0·003
15	0·861	0·743	0·555	0·417	0·315	0·239	0·183	0·140	0·123	0·108	0·084	0·065	0·051	0·040	0·035	0·031	0·025	0·020	0·011	0·006	0·004	0·002
16	0·853	0·728	0·534	0·394	0·292	0·218	0·163	0·123	0·107	0·093	0·071	0·054	0·042	0·032	0·028	0·025	0·019	0·015	0·008	0·005	0·003	0·002
17	0·844	0·714	0·513	0·371	0·270	0·198	0·146	0·108	0·093	0·080	0·060	0·045	0·034	0·026	0·023	0·020	0·015	0·012	0·006	0·003	0·002	0·001
18	0·836	0·700	0·494	0·350	0·250	0·180	0·130	0·095	0·081	0·069	0·051	0·038	0·028	0·021	0·018	0·016	0·012	0·009	0·005	0·002	0·001	0·001
19	0·828	0·686	0·475	0·331	0·232	0·164	0·116	0·083	0·070	0·060	0·043	0·031	0·023	0·017	0·014	0·012	0·009	0·007	0·003	0·002	0·001	
20	0·820	0·673	0·456	0·312	0·215	0·149	0·104	0·073	0·061	0·051	0·037	0·026	0·019	0·014	0·012	0·010	0·007	0·005	0·002	0·001	0·001	
21	0·811	0·660	0·439	0·294	0·199	0·135	0·093	0·064	0·053	0·044	0·031	0·022	0·015	0·011	0·009	0·008	0·006	0·004	0·002	0·001		
22	0·803	0·647	0·422	0·278	0·184	0·123	0·083	0·056	0·046	0·038	0·026	0·018	0·013	0·009	0·007	0·006	0·004	0·003	0·001	0·001		
23	0·795	0·634	0·406	0·262	0·170	0·112	0·074	0·049	0·040	0·033	0·022	0·015	0·010	0·007	0·006	0·005	0·003	0·002	0·001			
24	0·788	0·622	0·390	0·247	0·158	0·102	0·066	0·043	0·035	0·028	0·019	0·013	0·008	0·006	0·005	0·004	0·003	0·002	0·001			
25	0·780	0·610	0·375	0·233	0·146	0·092	0·059	0·038	0·030	0·024	0·016	0·010	0·007	0·005	0·004	0·003	0·002	0·001	0·001			
26	0·772	0·598	0·361	0·220	0·135	0·084	0·053	0·033	0·026	0·021	0·014	0·009	0·006	0·004	0·003	0·002	0·002	0·001				
27	0·764	0·586	0·347	0·207	0·125	0·076	0·047	0·029	0·023	0·018	0·011	0·007	0·005	0·003	0·002	0·002	0·001	0·001				
28	0·757	0·574	0·333	0·196	0·116	0·069	0·042	0·026	0·020	0·016	0·010	0·006	0·004	0·002	0·002	0·002	0·001	0·001				
29	0·749	0·563	0·321	0·185	0·107	0·063	0·037	0·022	0·017	0·014	0·008	0·005	0·003	0·002	0·002	0·001	0·001	0·001				
30	0·742	0·552	0·308	0·174	0·099	0·057	0·033	0·020	0·015	0·012	0·007	0·004	0·003	0·002	0·001	0·001	0·001					
40	0·672	0·453	0·208	0·097	0·046	0·022	0·011	0·005	0·004	0·003	0·001	0·001										
50	0·608	0·372	0·141	0·054	0·021	0·009	0·003	0·001	0·001	0·001												