

EASTERN UNIVERSITY, SRI LANKA

FACULTY OF COMMERCE AND MANAGEMENT

THIRD YEAR - FIRST SEMESTER EXAMINATION IN COMMERCE (SPECIALIZATION IN

ACCOUNTING AND FINANCE) 2017/ 2018 (JULY 2019)

(PROPER/ REPEAT)

DAF 3034 ADVANCED MANAGEMENT ACCOUNTING

Answer all questions

Time: 03 Hours

Calculator is permitted

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01. JK Ltd is a light engineering company which produces a range of components, machine tools and electronic devices for the motor and aircraft industry. It employs about 1,000 people in 12 main divisions, one of which is alarm systems division.

**Alarm systems Division**

JK Ltd produces two types of alarm system, one for offices and homes (X) and the other for motor vehicles (Y), on the same equipment. For financial reasons, it is important to minimize the cost of production. To match the current stock and demand position, at least 100 alarm systems in total are required each week, but the quantity of one type must not exceed twice that of the other. The inputs necessary for the manufacture of one alarm system are given bellow, together with the availability of resources each week.

Type	Planting	Circuitry	Assembly
X	3 feet	4 units	20 mins
Y	2 feet	8 units	8 mins
Total available each work	420 feet	800 units	34 hours

The Management Accountant estimates that the unit costs of production are Rs.100 for X and Rs.80 for Y. Past experience suggests that all alarms can be sold.

**Required:**

State the objective function and the constraints for the production of alarm systems and use a graphical method to find the optimal product mix.

(Total 20 Marks)

02. i. A business is considering a project which would last 5 years and have an initial investment of Rs.40,000 in machinery. At the end of the project the machinery would have a scrap value of Rs.4,000. The project would provide annual net cash inflows as follows:

Year	Net cashflow
1	16,000
2	20,000
3	12,000
4	12,000
5	10,000

The company has a target payback period of 2.5 years and new projects must also provide average accounting rate of return of at least 15% p.a.

**Required:**

Advise the company on whether this project meets the company's targets.

(06 Marks)

- ii. Movefirst is a profitable international pharmaceutical company that develops, produces and markets drugs that are licensed as medication. The pharmaceutical industry has grown rapidly and faces challenges in preventing and controlling environmental pollution. Over the past few years, there has been growing pressure on the industry from government, shareholders and other stakeholders to improve its environmental management performance. Movefirst has taken a proactive approach to environmental management and has invested significant resources introducing pollution prevention and clean manufacturing practices into its operation in order to reduce waste and minimize negative environmental impacts. The company has used marketing and advertising campaigns to develop an image as a company that is at the cutting edge of 'green' technology. As part of its environmental management programme, Movefirst is considering investing in a new system that will significantly reduce hazardous emissions and waste.

The estimates for the proposed investment are as follows:

Initial investment	60 million
Useful life	6 years
Residual value	12 million
Annual income from sale of recycled waste	5 million

Annual savings in waste disposal costs 5.5 million  
Annual fixed maintenance costs per annum 1.5 million  
Other annual fixed operating costs per annum (including depreciation) 10.6 million

Depreciation of the initial investment will be calculated using the straight line method and has been included in other fixed operating costs.

The company's financial director has provided the following taxation information:

- Tax depreciation: 25% per annum of the initial investment (straight line method).
- Taxation rate: 30% of taxable profits.

The company uses a cost of capital of 12% per annum to evaluate projects of this type. Ignore inflation.

**Required:**

Evaluate the investment in the proposed system using net present value as the basis of your evaluation

(14 Marks)

(Total 20 Marks)

3. i. Name the six primary business functions that make up the value chain and briefly describe each.
- (05 Marks)
- ii. Why is working capital a particularly important area of concern for financial managers? Briefly explain the impact working capital management can make on profitability of an organization.
- (05 Marks)
- iii. You have collected the following information for the Bret & Lee Company

Item	Beginning of period	Ending of period
Inventory (Rs.)	500,000	700,000
Accounts receivable (Rs.)	160,000	240,000
Accounts payable (Rs.)	270,000	480,000

Credit sales for the year just ended were Rs.5,000,000, and cost of goods sold was Rs.3,000,000.

**Required:**

- How long does it take Bret & Lee to collect on its receivables?
- How long does inventory stay around before it is sold?
- How long does it take Bret & Lee to pay its suppliers?
- Calculate the operating cycle and cash cycle of the company and comment on the working capital management of the company.

(10 marks

(Total 20 Marks

04. i. The following estimates of activity times (in days) are available for a small project.

Activity	Optimistic	Most Probable	Pessimistic
A	4	5.0	6
B	8	9.0	10
C	7	7.5	11
D	7	9.0	10
E	6	7.0	9
F	5	6.0	7

**Required:**

- Compute the expected activity completion times and variation for each activity
- An analyst determined that the critical path consists of activities B-D-F. Compute the expected project completion time and the variance.
- Calculate the probability of completing the project within 25 days.

(08 Marks

- ii. Office Automation pic developed a proposal for introducing a new computerized office system that will improve word processing and interoffice communications for a particular company. Contained in the proposal is a list of activities that must be accomplished to complete the new office system project. Use the following relevant information about the activities.

Activity	Description	Immediate Predecessor	Times (weeks)		Costs (Rs.'000)	
			Normal	Crash	Normal	Crash
A	Plan needs	-	10	8	30	70
B	Order equipment	A	8	6	120	150
C	Install equipment	B	10	7	100	160
D	Set up training lab	A	7	6	40	50
E	Conduct training course	D	10	8	50	75
F	Test system	C,E	3	3	60	-

**Required:**

- Develop a project Network.
- What are the critical activities, and what is the expected project completion time?
- Assume that the company wants to complete the project in six months or 26 weeks. What crashing decisions do you recommend to meet the desired completion time at the least possible cost?
- What added project cost is required to meet the six months completion time?

(12 Marks)

(Total 20 Marks)

05. i. In a plant layout of a factory, it is required to install four machines  $M_1$ ,  $M_2$ ,  $M_3$ , and  $M_4$  in a machine shop. Due to limited space, machine  $M_2$  cannot be installed at  $S_3$  and  $M_3$  cannot be installed at  $S_1$ . The cost of installation of machine  $M_i$  at location  $S_j$  is given below (in rupees).

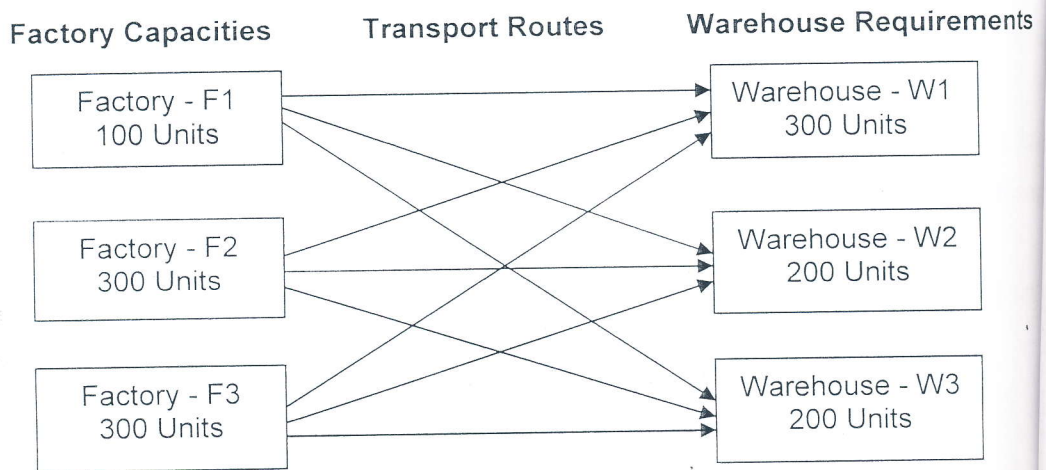
$M_i \backslash S_j$	Location				
	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$
$M_1$	900	1100	1500	1000	1100
$M_2$	1200	900	-	1000	900
$M_3$	-	1100	1400	1100	700
$M_4$	1400	800	1200	700	800

**Required:**

Find the optimal assignment schedule.

(08 Marks)

- ii. The Ideal Furniture PLC manufactures and sells high quality furniture in Sri Lanka. The company has three factories located in rural areas of the country whereas the three warehouses are located in three major cities of the country. An estimate of the monthly production capacity at each factory location and an estimate of the number of furniture that is needed each month at each of the three warehouses are shown in the following figure.



Production cost per furniture is identical at each factory. However, the transport costs from each factory to warehouse vary according to the following table. These transport costs per unit are assumed to be constant regardless of the volume transported.

From Source (Factory)	To (Destinations- Warehouses)		
	W 1	W 2	W3
F 1	Rs. 500	Rs. 400	Rs. 300
F 2	Rs. 800	Rs. 400	Rs. 300
F 3	Rs. 900	Rs. 700	Rs. 500

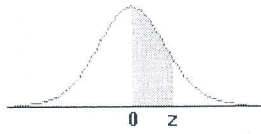
**Required:**

- Define the problem and setup the transportation table for Ideal Furniture PLC.
- Develop an initial feasible table using both North West Corner Rule.
- Advise Ideal Furniture PLC about the optimum route and minimum transport cost for the month (apply MODI method).
- A new transport company approaches the Ideal Furniture PLC with a proposal to transport one unit of furniture from factory 3 (F3) to warehouse 1 (W1) at Rs. 690. What is the total annual cost saving for Ideal Furniture PLC if accepting this offer?

(12 Marks)

(Total 20 Marks)

Standard Normal (Z) Table  
Area between 0 and z



	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

