THE INSTITUTE OF CHARTERED ACCOUNTANTS OF SRI LANKA

No of pages: 12

Business Level

Business Management Accounting

(Pilot Paper)

Instructions to candidates

(1) Time allowed: 3 hours

(2) Section 1: 5 questions – **all questions are compulsory**

Section 2: 2 questions – **both questions are compulsory**

(3) Answers to questions should be in the answer booklet provided to you. Begin each answer on a separate page.

(4) All answers should be in **English.**

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June 2015

SECTION 1

All five questions are compulsory.
Total marks for Section 1: 50 marks.
Recommended time for the Section is 90 minutes.

Question 01

A. Seal Ltd is a specialized tyre maker that manufactures three main types of tyres: Heavy Duty, Industrial and Racing tyres. These tyres are directly shipped to tyre trading houses in Europe. The details of these three types of tyres are given below.

Tyre type	Cost of rubber per tyre (Rs.)	Labour hours per tyre	Machine hours per tyre
Heavy Duty	8,000	1	2
Industrial	6,000	2	2
Racing	5,500	4	7

The cost per 1 kg of rubber is Rs. 200. The cost per labour hour is Rs. 300.

The company has budgeted to produce the following quantities during the next year.

Tyre type	Production volume
Heavy Duty	4,000
Industrial	2,500
Racing	3,000

The budgeted production overhead cost for the next year is Rs. 9,525,000. Seal Ltd. absorbs production overheads based on the weight of a tyre. All the tyres are priced at total production cost plus a 25% mark up.

Required:

Calculate the price for each type of tyre based on the present overhead absorption method.

(2 marks)

B. The tyre trading houses in Europe have now started to complain that the prices of tyres supplied by Seal Ltd are not competitive compared with the prices of other tyre suppliers. Seal Ltd therefore hired a consultant to implement Activity Based Costing (ABC) with the aim of improving its pricing. The consultant,

having studied the production process of Seal Ltd, gathered the following information.

The production overhead cost of Rs. 9,525,000 can be related to the following main activities which are driven by the cost drivers as indicated.

Activity	**Cost driver**	**Cost (Rs.)**
Assembling	Assembling machine hours	3,487,500
Mixing	Mixing machine hours	2,497,500
Machine set-up	Machine set-ups	1,575,000
Finishing	Labour hours	1,965,000

Tyre type	**Assembling machine hours per tyre**	**Mixing machine hours per tyre**	**Batch size (No. of tyres)**
Heavy Duty	1	1	40
Industrial	1	1	50
Racing	3	4	10

Required:

1. **Calculate** the price per tyre as per ABC method.

(4 marks)

2. **Evaluate** the results obtained above.

(4 marks)

(Total 10 marks)

Question 02

A. Unibal Sales (Pvt.) Ltd. prepared the cash budget for the next year. The following cash balances are expected.

Period	Q1	Q2	Q3	Q4
Closing cash balance (Rs.)	(1,205,000)	755,000	1,670,000	2,105,000

Required:

1. **State** four actions that Unibal Sales (Pvt.) Ltd. can take to manage the cash deficit in Q1.

(1.5 marks)

2. **State** two possible actions it could take in respect of cash surpluses.

(1.5 marks)

B. During the latter part of the year, Unibal Sales (Pvt.) Ltd. invested in a 91 day Treasury bill with a face value of Rs. 500,000. Now the company wants to discount these Treasury bills which have 40 days remaining to maturity. The market yield for Treasury bills is presently 8%.

(Assume 365 days in a year for interest calculation purposes.)

Required:

Assess the expected discounted price of the Treasury bills.

(2 marks)

C. In order to ensure that production continues smoothly, Unibal Sales (Pvt.) Ltd. generally holds raw materials inventory. After finding more reliable suppliers the Company is reviewing its inventory holding policy and economic order quantity (EOQ).

The following information is available for Component P.

Cost	Rs. 800 per unit
Annual production usage	12,000 units
Cost of placing one order	Rs. 1,500
Cost of holding one unit	Rs. 30 per annum

The supplier of Component P offers a bulk discount of 3% on the price of the component if a single order size is 1,500 units or more.

Required:

1. **Assess** the EOQ for Component P without considering any discount.

(2 marks)

2. **Demonstrate** whether or not Unibal Sales (Pvt.) Ltd. should increase the order size of Component P to qualify for the bulk discount.

(3 marks)

(Total 10 marks)

Question 03

Chemitall Limited (CL), a chemical manufacturing company has purchased a state-of-the-art manufacturing plant which can manufacture three types of chemicals namely A, B and C. Management expects that some of the monthly manufacturing resources will be scarce in supply and based on the estimated data the following table has been prepared.

	Per kg. of chemical			**Resource availability**
	(A)	**(B)**	**(C)**	
Contribution (Rs.)	85/-	140/-	180/-	
Machine time (in minutes)	1.25	1.00	2.00	39,600
Quality checking time (in minutes)	1.50	2.50	2.00	66,000
Common material (in kg)	0.20	0.50	0.60	15,000
Labour time (in minutes)	2.00	3.00	4.00	90,000

Based on the information given above, the following final simplex tableau obtained from your simplex solver software for the relevant linear programme is available.

	A	B	C	S_1	S_2	S_3	S_4	
S_1	0.500	0	0	1	0.500	0	-0.750	5,100
B	0.500	1	0	0	1	0	-0.500	21,000
S_3	-0.125	0	0	0	-0.050	1	-0.125	450
C	0.125	0	1	0	-0.750	0	0.625	6,750
Z	7.5	0	0	0	5	0	42.5	4,155,000

A, B and C represent the number of kilograms to be produced from chemicals A, B and C respectively. S_1, S_2, S_3 and S_4 are slack variables for machine time (in minutes), quality checking time (in minutes), common material (in kg) and labour time (in minutes), respectively.

Required:

By interpreting the information in the above solution tableau you have been asked to:

1. **Prepare** an analysis to the management indicating:
   i. Optimal product mix and optimal contribution,
   ii. Unutilised production resources, if any,
   iii. Opportunity cost of scarce resources.

   (3 marks)
2. **Demonstrate** whether a proposal to allow 20 hours overtime (OT) per month for the skilled workers at Rs. 450 per OT hour is acceptable.

   (2 marks)

3. **Demonstrate** how the introduction of 10 additional quality checking hours will affect the present product mix and utilisation of resources.

(2 marks)

4. **Assess** the revised product mix, unutilised scarce resources and total contribution from a minimum contract for 1,000 kgs of chemical A per month, received from a subsidiary of CL.

(3 marks)

(Total 10 marks)

Question 04

PC Tech (PCT) is engaged in assembling and selling computers. The following information is forecasted for the forthcoming year.

- Value of expected sales is Rs. 400Mn of which 60% is on 90 days credit and the balance 40% is on cash.
- Cost of sales is 70% of sales.
- Value of materials is 60% of the cost of sales. PCT is given a credit period of 30 days by its material suppliers.
- PCT expects to maintain a raw material/work-in-progress/finished goods inventory equivalent to 45 days cost of sales and a cash in hand balance of Rs. 5 Mn.
- PCT operates 360 days in a year.

The Management of PCT is also planning to further reduce the value of the working capital requirement by reducing credit terms to customers by 30 days. Management expects all customers will accept the terms at a 1.5% discount. PCT's cost of capital is 15% per annum**.**

Required:

1. **Assess** the working capital requirement of PCT for the next year.

(4 marks)

2. **Demonstrate** that the proposed strategy to reduce the value of working capital is not acceptable.

(2 marks)

3. **Assess** the minimum reduction in credit period advisable at the proposed discount rate.

(2 marks)

4. **Discuss** three other strategies to reduce the working capital requirement.

(2 marks)

(Total 10 marks)

Question 05

A. Marbles Ltd. is a manufacturing and trading company with several divisions. The divisional managers are given the freedom to make operational decisions, including purchasing decisions. Divisional performance is judged solely on divisional profitability.

Division A produces a single product and sells to Division B and to outside buyers. The profit statement of Division A is given below.

Profit statement of Division A	**(Rs.)**
Sales revenue	
- Internal @ Rs.300 per unit	1,500,000
- External @ Rs.350 per unit	3,500,000
Variable costs	(2,700,000)
Fixed costs	(1,700,000)*
Profit	600,000

* Rs. 300,000 of the fixed cost can be avoided if the capacity is reduced below 12,000 units.

The production capacity of Division A is 18,000 units per annum and the above external sales represent the maximum external demand.

A supplier has offered to supply 4,000 units at a selling price of Rs. 250 each to Division B. Since Division A did not agree to reduce its selling price, Division B decided to purchase 4,000 units from the external supplier and the balance 1,000 units from Division A.

Required:

Calculate the impact on Division A, Division B and Marbles Ltd., if Division B buys from the external supplier.

(5 marks)

B. The manager of Division D, another division of Marbles Ltd., has prepared the following forecasts for his division for the next year.

Forecast	**(Rs.)**
Operating profit	1,700,000
Net current assets at the beginning of year	600,000
Net book value of fixed assets at the beginning of year	3,600,000

The cost of capital of Marbles Ltd. is 15% per annum.

The manager is now considering the sale of an existing machine that is included in the above forecasts and buying a new machine. The details are as follows.

	Annual profit	Net book value/ Purchase price
Existing machine (Rs.)	50,000	240,000
New machine (Rs.)	104,000	300,000

The existing machine will be sold for the net book value. Using these proceeds and withthe deficit being met by Head Office, the new machine is to be purchased for Rs.300,000.

Required:

Assess the impact on the division's return on investment based on the beginning of year financial statement values, if the new investment is undertaken.

(5 marks)

(Total 10 marks)

SECTION 2

Both questions are compulsory.
Total marks for Section 2: 50 marks.
Recommended time for the Section is 90 minutes.

Question 06

A. Weedicide Ltd. is the local subsidiary of a multinational agro-chemical company. It manufactures a weed killer by mixing two chemicals X and Y. The normal loss in the production process is 30% of input.

The following details are given.

	Standard mix	**Standard price per litre (Rs.)**	**Actual mix**	**Actual cost (Rs.)**
X	60 litres	50	8,000 litres	360,000
Y	40 litres	100	7,000 litres	560,000

Actual yield of the weed killer is 11,500 litres.

Required:

1. **Discuss** the statement: "Direct material mix and yield variances must be interpreted with care, as there is a very strong interrelationship between them."

(2 marks)

2. **Calculate** the following variances:
   i. Material price
   ii. Material mix
   iii. Material yield

(4 marks)

3. **Interpret** your results with possible causes.

(3 marks)
(Total 9 marks)

B. Weedicide Ltd. has invented a new weed killer spraying machine with an advanced technology which allows farmers to spray weed killer with high precision. The first machine took 45 hours of labour to produce due to initial teething problems. It is expected that a learning effect of 80% will apply until 75 units are produced. Time taken for the remaining production, i.e. the production after 75 units, is the same as the time taken for the 75th unit. Labour is paid at Rs. 400 per hour, while variable overheads are charged at Rs. 200 per hour. The spraying tank cost Rs. 800 and the other necessary components cost Rs. 650 per machine.

Required:

Calculate the cost per unit of the first 75 spraying machines.

(4 marks)

C. Assume that Weedicide Ltd. has not considered the learning curve impact when setting the standard. As a result, they have considered the time of 45 hour per unit when setting the budget for the spraying machines.

Weedicide Ltd. incurred labour cost of Rs. 506,250 on 1,350 hours in producing the first 100 units of the spraying machine.

Required:

1. Apply the labour variance into planning and operating components.

(5.5 marks)

2. Interpret the results.

(1.5 marks)

D. The parent company of Weedicide Ltd. allows the local managers to prepare their own budgets for the Company.

Required:

Discuss the benefits and limitations of this approach in budget preparation.

(5 marks)

(Total 25 marks)

Question 07

Yummy Confectionery (YC) is a confectionery manufacturer who was the market leader for biscuits several years ago. Presently, YC is experiencing a declining demand for its products due to competition and higher manufacturing costs. YC presently uses its old manufacturing plant.

YC now considers buying a new biscuit manufacturing plant for Rs. 100Mn which has a lifetime of 5 years, with a scrap value of Rs. 20Mn at the end of the fifth year. The following changes are expected if the new plant is purchased.

- The present selling price (Rs. 300) less cost of materials is equal to Rs. 150 per output kg. The labour costs are incurred for the permanent employees and as

such these costs are fixed. There will be savings of 10% in material usage if the new plant is used.

- New pricing policy will be 10% lower than the present prices.
- The new plant supplier has offered YC Rs. 4 Mn for the existing plant. If this offer is not accepted YC will not be able to dispose of the old plant for any value in the future.
- It is expected to implement an additional advertising campaign during the period which will cost Rs. 5 Mn annually in the first two years and Rs. 2 Mn annually thereafter.
- The following table includes forecast incremental demand and incremental fixed overhead costs of the factory when the new plant is in place and based on the new pricing policy.

Year	**01**	**02**	**03**	**04**	**05**
Increase in demand (kg)	90,000	320,000	500,000	600,000	600,000
Increase in fixed costs (Rs.)	18 Mn	19 Mn	20 Mn	20 Mn	21 Mn

Incremental fixed costs include annual depreciation of the new plant calculated on a straight-line basis (Rs. 100 Mn less Rs. 20 Mn, divided by 5 years). If the existing plant is used, the sales will remain at the present level of 500,000 kg per year for the next five years.

- One of the YC's technicians is already scheduled to visit the machinery supplier in Japan. The air ticket is already purchased for Rs. 200,000. The other expenses (not yet incurred) on this tour will be Rs. 150,000 and payable during Year 01.
- The new plant will reduce the electricity bill by Rs. 1.5 Mn per year for the first two years and Rs. 3 Mn per year thereafter.
- The new plant will release a part of the factory space. Management expects to shift one of its warehouse located in an external rented building to this space. Current annual rent for this external warehouse is Rs. 2.2 Mn.
- 5 workers who are presently working with the old plant for an annual total salary of Rs. 1.5 Mn, will no longer be required for the new plant. Therefore these workers need to be made redundant for a total compensation of Rs. 2 Mn, payable immediately (allowable for tax in Year 01).

Other information

- YC's profits are liable for income tax at 28%. Existing assets are fully depreciated for tax purposes and the new plant can be depreciated over a period of 3 years for tax purposes. YC currently makes profits from both biscuit manufacturing and other operations.
- Cost of capital of YC is 15% per annum.

Required:

1. **Evaluate** the financial feasibility of the new plant using Net present value (NPV) and Internal rate of return (IRR) methods.

   (13 marks)

2. **Explain** two advantages of the NPV method in comparison with the IRR method.

   (2 marks)

3. You learned at a recent workshop that the "Benchmarking" approach can also be used to increase customer satisfaction and thereby enhance demand.

   Discuss the concept of Benchmarking and explain 03 practices and processes that YC can benchmark in the above scenario in order to increase the demand from customers.

   (5 marks)

4. YC is evaluating another two mutually exclusive projects of which the following details are given.

	Project A	**Project B**
Initial capital outlay (Rs.)	200 Mn	300 Mn
Present value of future cash flows (Rs.)	350 Mn	480 Mn

   Evaluate the two projects using (a) Profitability index (PI) (b) NPV criteria and **advise** YC on making the investment decision.

   (5 marks)

(Total 25 marks)