National University of Science and Technology

FACULTY OF COMMERCE

DEPARTMENT OF ACCOUNTING

FIRSTSEMESTER MAINEXAMINATION PAPER: 2013/2014

DATE: **DECEMBER 2013**

SUBJECT: MANAGEMENT AND COST ACCOUNTING:CAC4105

TIME ALLOWED: **THREE (3) HOURS**

MARKS: **100**

INSTRUCTIONS TO CANDIDATES

1. Answer ALLquestions
2. Use the examination answer book provided
3. Use black or blue pen
4. Begin each question on a new page
5. Submit all answer books

QUESTION 1 [25 MARKS]

(a) Briefly outline the main features of 'feedback control', and the 'feedback loop' and explain how, in practice, the procedures of feedback control can be transformed into 'feed-forward control'. **[5]**

(b) Give *four* reasons why the adoption of Total Quality Management (TQM) is particularly important within a Just-in-Time (JIT) production environment. **[5]**

(c) Briefly outline the advantages and disadvantages of allowing profit centre managers to participate actively in the setting of the budget for their units. **[5]**

(d) Explain and discuss the similarities and differences between Residual Income and Economic Value Added as methods for assessing the performance of divisions. **[5]**

(e) Define the 'controllability principle' and give arguments for and against its implementation in determining performance measures. **[5]**

QUESTION 2 [25 MARKS]

P Ltd is a wholly owned subsidiary of PV Ltd, a commercial property operator with various properties countrywide. Parcades adjacent to shopping malls and office parks in their portfolio are run through the P Ltd division. P Ltd operates three car parks in the Bulawayo metropolitan area. Two of the P Ltd run car parks are situated at shopping malls in the suburbs, with the remaining car park in the city centre, catering for office workers. The demand for parking at the shopping malls is consistently high throughout the whole year, peaking at weekends and school holidays. In the city centre the demand is more concentrated during week days and school terms.

P Ltd is regarded by PV Ltd as a valuable segment in their portfolio of operations in terms of revenue and cash generation and the strategy has been one of maintaining and increasing, if at all possible, current income levels. A uniform fee is currently charged at all parcades. Off-peak fees are $2 per hour and peak fees are $4 per hour.

Their main competitor in the BULAWAYO area is Easypark Ltd. EasyparkLtd's charges are roughly 20% higher than that of P Ltd. They offer slightly different services and their tariffs are calculated differently to allow for both short and long stay users. Their parcades are all enclosed and offer a greater degree of security. (In terms of P Ltd'sparcades, only Mall North is enclosed, being a multi storey facility.)

P Ltd has recently received a consultant's report which they commissioned on transport and congestion within the city. It was discussed at the last board meeting. It has been recognisedthat it may be time to discontinue the current policy of standard charges at all the parcades as there may be grounds for differentiating between shopping mall and office car parks.

Information on parking activity for the 2012 financial year has been collected by the consultants. It is summarised in the following table:

	Mall North	**Mall East**	**Office City centre**
Full capacity (cars)	2 000	1 500	500
Average capacity usage			
- Off peak	50%	55%	25%
- Peak	90%	95%	90%
Off peak days	56	56	142
Charging hours per day	16	16	10

Cost structure:

	Mall North	**Mall East**	**Office City centre**
	$	**$**	**$**
Parcade running costs	18 500 000	12 800 000	3 600 000
P Ltd overheads	450 000	330 000	120 000
PV Ltd overheads	120 000	115 000	90 000
Total cost	**19 070 000**	**13 245 000**	**3 810 000**

• Parcade running costs are those incurred directly by each car park and include rental charges from PV Ltd (the legal owners of the properties, except in the case of the Mall North car park which is leased to P Ltd by the Bulawayo Council with there being five years of the lease remaining from 1 January 2013). 20% of the parcade running costs can be assumed to vary with activity (usage).

• P Ltd overheads are general costs of the company head office which are apportioned to each car park. 50% of the overheads would be stepped fixed costs and would change if there were a significant change (>10%) in usage per parcade. It can be assumed that this change in stepped costs would be in 10% intervals and result in a 10% change in the respective costs.

• PV Ltd overheads are costs of central group services apportioned to P Ltd as a division and then re-apportioned to each car park.

• The usage figures are a yearly average and do not reflect peak time usage at certain parcades where there is often 100% usage.

• The parcades are operational 365 days of the year.

• The 2012 cost figures should be increased by 10% to adjust for inflation and unavoidable cost increases in 2013.

The consulting firm has also conducted a survey of car park users. It has generated some information on the likely sensitivity of demand to changes in price:

• At peak times it is likely that there would be no change in demand following price increases up to $1 per hour. After that there is likely to be a decrease in demand of 10%, based on current levels of demand for each additional $0,50 per hour increase.

• At off peak times the situation is different. The fall off in demand is likely to be 15% for each $0,50 per hour increase.

Required

(a) Calculate the budgeted profit before interest and tax for each of the Bulawayo parcades in **2013** if the **current** fee structure is retained. **[7]**

(b) Prepare the flexed budget for the **Mall East parcade**if the fees are increased by $1,50 per hour (peak) and $1 per hour (off peak) in **2013**. **[18]**

QUESTION 3 [25 MARKS]

T & C plc launched a new product in January this year. Expected production was budgeted to be:

January	400 units	April	750 units
February	480 units	May	800 units
March	620 units	June	820 units

The initial costings for the new product at the beginning of January were based on:

● Labour: Rate of pay $4 per hour.
A trial period run of 100 units at the end of December showed a 70 per cent learning curve and the time taken to produce the first Unit of the trial period was 53.47 hours.

● Variable overhead: Varies with labour hours and is 300 per cent of labour cost.

T& C plc always agrees a learning curve with its employee representatives when a new product is introduced. This governs the payment of a bonus of 15 per cent of pay, if the average actual hours each month are less than the hours expected with the application of the learning percentage. In this case the 70 per cent learning curve was agreed for the first 3 months based on the trial period. The actual learning curve achieved in the first three months plus the trial period would be substituted thereafter for bonus payments.

The labour force experienced some difficulty working with the material, which was not 100 per cent pure. As a result, after the first month of production, the supplier improved the purity of the material supplied.

During January to March, the units produced were as budgeted. The actual labour hours spent making the new product from the beginning of the trial period to the end of March were 2150.

Required

(a)

(i) Calculate the budgeted average labour time per unit for all units produced up to the end of March. **[2]**

(ii) Calculate the learning curve percentage, to two decimal places, which would apply from April onwards for the payment of the bonus. **[5]**

(b) Comment on the eligibility of a bonus payment to the employees of T & C plc if 460 labour hours were worked to produce 775 units in April. **[12]**

(c) Comment briefly on the suitability of T & C plc's accounting systems and staff remuneration policy. **[6]**

Note: Learning curve effects may be appraised by using the formula Y =aXb.

Where Y = the cumulative average time per unit for X units,

a =the time taken to make the first unit,

X =the number of units made, and

b = the index of learning, this is the log of learning rate/log 2.

QUESTION 4 [25 MARKS]

X& Z motor group comprises three autonomous divisions and its divisional managers are paid salary bonuses linked to the profit that their respective divisions achieve.

The New Vehicle (NV) division has a city show room. It sells new vehicles and accepts trade-ins which are sold to the Used Vehicle (UV) division at a 'going trade price' less any repair costs. The Vehicle Repair (VR) division performs necessary repair work to trade-ins and invoices UV for such work on a full cost plus basis. Both the UV and VR divisions do a great deal of business unrelated to trade-ins.

NV has the option of selling a new vehicle to a customer for $40 000 (including a 25% profit mark up on cost) providing the customer is given a trade-in value of $28 000 on his old vehicle. Reference to used car value guides indicate that the going trade price for the trade-in vehicle will be $17 500. However, it is estimated that UV division will be able to sell the trade in for $28 900 after incurring a charge from VR for repairing the vehicle as follows:

	$
Variable costs	500
Fixed overheads	250 (being 50% of Variable costs)
Mark up	75 (being 10% on cost)
Total	**825**

Required

(a) Calculate the impact on the contribution of each division andX & Zin total of proceeding with the new car sale on the terms specified. **[10]**

(b) Explain the possible sources of conflict between the managers of the three divisions and the X & Z group management arising from the organisational arrangement of the X & Z group and its transfer pricing system. **[8]**

(c) Distinguish between profit and investment centres and explain the link to the concept of decentralisation. **[7]**

END OF EXAMINATION PAPER