AFRICA UNIVERSITY

(A United Methodist-Related Institution)

"Investing in Africa's Future"

FACULTY OF MANAGEMENT AND ADMINISTRATION

COURSE TITLE: **MAC 201 Cost Accounting (Parallel)**

SEMESTER 2: **Final Examination November 2013**

LECTURER: **Mr S.N. Chuchu**

TIME: **3 HOURS**

INSTRUCTIONS

Answer **all five (5)** questions.

Start **each** question on a new page in your answer booklet.

The marks allocated to **each** question are shown at the end of the question.

Show all your workings.

Credit will be given for logical, systematic and neat presentations.

Question 1

(a) John Moyo is a smallholder farmer running a successful irrigation project. He is considering the economic order quantity (EOQ) for the brand of fertilizer he uses, greenacre. The following data is available:

Annual demand	200 000 bags
Ordering cost per order	$60
Annual carrying costs per bag	$24

Required:

Calculate the following:

(i) the EOQ for greenacre. **[2 marks]**

(ii) the number of orders per year. **[1 marks]**

(iii) the total relevant costs (TRC). **[2 marks]**

(b) Libra Limited does customized jobs per customer orders. During 2012, the firm did one such job, produced as Job 430, which passed through three departments, A, B and C. The following data relate to Job 430:

	Department A	**Department B**	**Department C**
	$	**$**	**$**
Material consumed	8 000	2 000	3 000
Direct labour: wage rate per hour	6	8	10
Direct labour hours	300 hours	200 hours	400 hours

In accordance with company policy, the following are charged to all jobs:

Fixed production overhead	$5 per direct labour hour

Fixed administrative overhead	80% of total production cost
Profit mark-up	25% on total operating costs

Required:

Prepare the costing statement to determine the total cost and selling price of the job.

[15 marks]

Question 2

Scorpio Limited manufactures a product in one process. Material is input at the beginning of the process and conversion costs are incurred uniformly during the month. Cost and production information for October 2013 is as follows:

	$	**Units**
WIP at 1 October 2013 – 40% completed	75 000	2 000
Input material	45 000	
Conversion costs	30 000	
Input material added in October 2013	500 000	20 000
Conversion costs in October 2013	300 000	
Completed and transferred to finished products		15 750
WIP at 31 October 2013 – 75 % completed		3 000

Additional information:

1. Normal wastage is 17.5% of input material and occurs at the beginning of the process.
2. Scrapped units can be sold for $2.00 per unit.
3. The company uses the average cost method to value closing WIP and completed production.

Required:

(a) Prepare the schedule of equivalent units. **[10 marks]**
(b) Compute the cost per equivalent unit. **[4 marks]**
(c) Compute the cost of closing WIP, abnormal gain and completed production. **[6 marks]**

Note: Ledger accounts are not required.

Question 3

Sagittarius Limited manufactures specialty tools to customer order. The firm has been applying plantwide overhead absorption on the basis of machine hours, that is, functional-based costing (FBC). The budgeted capacity per annum on the basis of machine hours is 10 000 machine hours. However, the firm is now considering applying activity-based costing (ABC). The budgeted overhead costs for 2014 are as follows:

	$
Purchasing	60 000
Set-ups	70 000
Engineering	30 000
Other	20 000
Total budgeted overhead	180 000

The accountant has determined that appropriate cost drivers for overhead activities are:

- Purchase orders for purchasing costs
- Number of set-ups for set-up costs
- Engineering hours for engineering costs
- Machine hours for other costs

The budgeted annual capacities for the above cost drivers are 5 000 purchase orders, 500 set-ups and 500 engineering hours.

The accountant has been asked to prepare a bid for Job 145 ordered by a customer and to be manufactured in January 2014. The following data relate to the job:

Direct material	$17 800
Direct labour	$4 000
Number of set-ups	3
Number of purchase orders	20
Number of engineering hours	10
Number of machine hours	200

A bid price includes a 25% mark-up over manufacturing cost.

Required:

(a) Using FBC plantwide overhead absorption rate based on machine hours, prepare a costing statement to determine the bid price for Job 145. **[7 marks]**

(b) Using ABC, prepare a costing statement to determine the bid price for Job 145. **[10 marks]**

(c) Which bid is more accurate? Why? **[3 marks]**

Question 4

(a) Energy Limited manufactures generators. The firm is in the process of introducing a new generator designed for small houses. Market research has been undertaken to find out about customers' views on the value of the product and also to obtain a comparison with competitors' products. The results of this research have been used to establish a market-based target selling price of $240 per generator.

Cost estimates prepared on the basis of the proposed product specification indicate that the total operating costs per generator, including both manufacturing and non-manufacturing costs, would amount to $184. The target profit margin of the firm is 30% of the proposed selling price.

Required:
Determine the target cost and target cost gap for the new generator. **[5 marks]**

(b) Capricorn Limited manufactures one product. The standard cost per unit is as follows:

		$
Direct material	5 litres @ $6 per litre	30
Direct wages	5 hours @ $6 per hour	30
Fixed production overhead	5 hours @ $10 per hour	50
Total standard cost		110

The fixed overhead included in the standard cost is based on an expected monthly output of 900 units. Fixed production overhead is absorbed on the basis of direct labour hours.

The actual results for October 2013 were as follows:

Production		800 units
		$
Direct material	4 300 litres bought and used	23 650
Direct wages	4 200 hours worked	24 150
Fixed production overhead incurred		47 000

Required:
Calculate the following variances:

(i) Direct material price and usage variances **[6 marks]**

(ii) Direct labour rate and efficiency variances **[6 marks]**

(iii) Fixed production overhead expenditure variance **[3 marks]**

Question 5

(a) Aquarius Limited expects to have a cash balance of $27 000 on 1 January 2014. The budgeted data from 1 November 2013 to 31 March 2014 are as follows:

Month	**Cash sales**	**Credit sales**	**Purchases**	**Salaries**	**Fixed overhead**
	$	**$**	**$**	**$**	**$**

2013					
November	17 000	74 000	55 200	9 000	30 000
December	19 000	82 000	61 200	9 000	30 000
2014					
January	20 000	80 000	60 000	9 500	30 000
February	22 000	90 000	69 000	9 500	32 000
March	25 000	100 000	75 000	10 000	32 000

Additional information:

- All purchases are on credit and creditors give one month credit.
- Credit sales are settled as follows: 40% in the month of sale, 45% in the next month and 12 % in the following month. The balance represents credit losses.
- Salaries are paid in the current month.
- Fixed overheads are paid one month in arrears and include a charge for depreciation of $5 000.

Required:
Prepare the cash budget for January, February and March 2014. Do not include the column for the quarter. **[10 marks]**

(b) Pisces Limited manufactures a single product. Other data relating to the product are as follows:

Budgeted production and sales in units	30 000
	$
Selling price per unit	42.00
Variable cost per unit	24.00
Fixed cost per annum	300 000

Required:
Calculate the following:

(i) the contribution margin **[2 marks]**

(ii) the contribution margin ratio **[2 marks]**

(iii) the break-even point in units **[2 marks]**

(iv) the margin of safety in units **[2 marks]**

(v) the number of units that need to be sold to make a profit of $186 000. **[2 marks]**