GRADUATE SCHOOL OF ACCOUNTING

PROGRAMME: DIPLOMA IN THE THEORY OF ACCOUNTING (DTA)

PROGRAMME CODE: 07DTA

MODULE: MANAGERIAL ACCOUNTING & FINANCE

MODULE CODES: MF701Y

TEST & DATE: YEAR-END EXAMINATION – OCTOBER 2017

DURATION: 3 HOURS PLUS 15 MINUTES READING TIME
(08h00 to 08h15 Read contents of four Questions)
(08h15 to 11h15 Answer requirements for four Questions)
(11h15 Hand in Answers for all Questions)

MARKS: 120

LECTURER: PROFESSOR F J DE WAAL

EXTERNAL MODERATOR: MR J VAN RENSBURG

INSTRUCTIONS:

i. Please answer all questions.

ii. You need to start each question on a separate page.

iii. Record your student and question numbers on the cover of the answer book.

iv. Write in ink and provide relevant reasons/workings in support of your answers.

v. Financial electronic calculators may be used.

vi. SAICA books and legislation are allowed into the examination venue (NONE FOR THIS SUBJECT).
Question 1

This question comprises Parts A, B and C (40 marks : 60 minutes)

One page only (14 marks : 21 minutes)

ABC Ltd is considering the purchase of YYZ, a specialized soya sausages producer, for R500 000 based on the following budget for the coming year based on normal production capacity of 60 000 boxes of 5 sausages each:

<table>
<thead>
<tr>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
</tr>
<tr>
<td>Direct Raw Material</td>
</tr>
<tr>
<td>Direct Labour (Assumed Variable)</td>
</tr>
<tr>
<td>*Fixed and Variable production overheads</td>
</tr>
<tr>
<td>Selling and Admin costs (All fixed)</td>
</tr>
</tbody>
</table>

*Total Production Overheads would be R 150 000 if XYZ produced 75 000 boxes of sausages.

Part A

Part A (14 marks : 21 minutes)

M Ltd’s budgeted costs and sale price per unit for the production of 100 000 T-shirts for the year to 30 April 20x7 were:

Sales price per shirt

Less costs:

- Materials - 2m² at R18/m²
- Labour - 1 hour at R14/hour
- Variable production overhead – 0,25 machine hours at R16/hour
- Fixed production overhead – 0,25 machine hours at R48/hour
- Variable selling costs (per shirt) – Commission at 5% of sale price
- Fixed administrative costs (per shirt)

Budgeted profit per unit

Actual sales and costs for the year to 30 April 20x7 were as follows:

- Number of shirts produced
- Number of shirts sold (60 000 at budgeted price and the rest at R116,50 each)
- Materials purchased: 230 000 m² (Inventory at 30 April 2017: Nil)
- Labour hours were 105 000 at a total variable cost of
- Variable production overheads, for 24 000 machine hours worked, were
- Fixed production overhead were absorbed per machine hours and totalled
- Fixed administrative costs were

Salesmen earned the budgeted percentage on actual sales.

Part B

Part B (14 marks : 21 minutes)

T-Division is one of Group Ltd’s divisions. T-Division uses 80% of its production capacity to manufacture 80000 units of its single product (The UPEG) and its financial results for the past year to 31 May 20X7 were as follows:

| Sales (80 000 units) | 160 000 |
| Variable production costs | 60 000 |
Question 1

The T-Division expects a 10% increase in variable cost and 5% increase in fixed costs effective from 1 June 2017. Selling prices and selling and marketing expenses should remain unchanged in 2018, but demand for the UPEG product is price sensitive and 2018 selling prices and estimated related demand are expected to be as follows:

<table>
<thead>
<tr>
<th>Selling price</th>
<th>Demand (units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2 650</td>
<td>60 000</td>
</tr>
<tr>
<td>R2 500</td>
<td>70 000</td>
</tr>
<tr>
<td>R2 000</td>
<td>80 000</td>
</tr>
<tr>
<td>R1 800</td>
<td>85 000</td>
</tr>
</tbody>
</table>

Another division, in the same group as T-Division, wish to purchase 40 000 units (no more, no less) of the UPEG product from the T-Division. A saving of 2% of internal sales in selling and marketing expenses applies when 40 000 units are sold internally. The buying division currently buy a product similar to the UPEG product in the external market at a cost of R2 000 per unit.

The requirements for Parts A to C will be handed out after the reading time.

Question 2

Tri-Secure produces and sells three types of security systems. The installation hours, standard cost and selling price per unit of the three products are as follows:

<table>
<thead>
<tr>
<th>Product</th>
<th>Day Light (R)</th>
<th>Night Time (R)</th>
<th>All Light (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable cost</td>
<td>217</td>
<td>150</td>
<td>297</td>
</tr>
<tr>
<td>Selling price</td>
<td>320</td>
<td>250</td>
<td>460</td>
</tr>
<tr>
<td>Maximum sales demand</td>
<td>2 000 units</td>
<td>3 000 units</td>
<td>1 800 units</td>
</tr>
<tr>
<td>Installation hours per product</td>
<td>4 hours</td>
<td>3 hours</td>
<td>5.5 hours</td>
</tr>
</tbody>
</table>

Fixed costs for the period are R500 000 and only 24 000 hours of the highly skilled installation labour is available during this period.

The requirements for this question will be handed out after the reading time.

Question 3

Nkomo Ltd wants to acquire a technologically advanced machine at a cost of R5 million to replace its existing machine.

The estimated useful life of the new machine is five years and its residual value will be R0.5 million after five years. It is estimated that the operating efficiencies and cost savings generated by the new machine will result in an increase of the existing machine’s operating cash inflows from its R1 million (before depreciation) to R2.75 million per annum (before depreciation).
The new machine will require the company to invest in additional working capital of R0.5 million immediately.

The existing machine was purchased 3 years ago for R3,750 million and tax wear and tear on it and on the new machine is allowed on a straight-line basis over 5 years to a zero book value. If sold today the existing machine would realize R1.1 million and if disposed of in 5 years time its scrap value will be zero.

Nkomo Ltd’s target weighted average cost of capital (WACC) is 20%. Nkomo Ltd is in a tax paying position and the current tax rate is 30%. There is no time lag in the payment of taxes.

You may ignore any inflation implications and assume that all cash flows occur at the end of the year unless stated otherwise in this question.

The requirements for this question will be handed out after the reading time.

**Question 4**

(40 marks : 60 minutes)

**One page only**

XYZ Limited only debt comprises 20 000 7.5% indefinite period debentures of R100 each. The current market return on equivalent debentures is 8% per annum before tax. The company’s target debt to equity ratio is 40% debt to 60% equity and the current corporate tax rate is 30%.

The company’s one million issued ordinary shares are presently valued at R4 million and the company paid dividends as follows:

- 2011: R500 000;
- 2012: R515 000;
- 2013: R532 000;
- 2014: R545 000

The management of XYZ Ltd instructed its financial manager to determine the following:

- The weighted average cost of capital of the company,
- The value of the company’s indefinite period debentures,
- Raise additional finance of R3 million in debt or new equity, probably in the form of a rights issue,
- The total return (Rn) on the company’s ordinary shares,
- The company’s Financial and Buiness Risk,
- The return, risk, Coefficient of Variation and Covariance with the market of an intended investment in A Limited as detailed below.

A Limited

XYZ Ltd wishes to invest in A Ltd whose estimated returns next year depends on the state of the economy as follows:

<table>
<thead>
<tr>
<th>State of economy</th>
<th>Probability of state</th>
<th>Return of A Ltd</th>
<th>Market returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom</td>
<td>0.25</td>
<td>22%</td>
<td>20%</td>
</tr>
<tr>
<td>Growth</td>
<td>0.35</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Normal</td>
<td>0.30</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Recession</td>
<td>0.10</td>
<td>0%</td>
<td>2%</td>
</tr>
</tbody>
</table>

You may use the following formulae in your answers if applicable:

\[ g = \frac{\ln(FV/PV)}{n} - 1 \]

\[ Ke = \frac{D(1+g)}{Ve - g} \]

\[ Rs = \frac{[Dps_t+(P_t-P_0)]}{P_0} \]

\[ V_{deb} = \sum^n (1/(1+r)^t) + (P/[1+r]^n) \]

\[ \sigma = \frac{\sum (R_i - \bar{R})^2 (P)}{\sqrt{n}} \]

\[ COV_{AM} = \frac{\sum (R_X - \bar{R}_X)(R_Y - \bar{R}_Y)(P)}{\sqrt{\sum (R_X - \bar{R}_X)^2 (P)}} \]

Round percentages to two decimal places and amounts to the nearest Rand.

The requirements for this question will be handed out after the reading time.
REQUIREMENTS FOR QUESTIONS 1 TO 2

QUESTION 1  (40 marks : 60 minutes)

Part A  (14 marks : 21 minutes)
You are required to:

a. Prepare a budgeted variable costing profit statement for XYZ for the coming year. ( 9 marks)

b. Calculate and comment on XYZ's budgeted breakeven units and margin of safety (%) for the coming year. ( 5 marks)

Part B:  (14 marks : 21 minutes)
You are required to calculate detailed separate standard cost variances for the following for the year ended 30 April 20x7 (no total variances are required):

- All raw material, labour and variable production cost variances  (8 marks)
- Fixed production overhead expenditure variance  (2 marks)
- Fixed administration costs variance  (2 marks)
- Sale price variance  (2 marks)

Part C  (12 marks : 18 minutes)
You are required to:

a. Include only external sales and the different price sensitive product demands and indicate which sales volume/price strategy will maximise the T-Division’s profit in the 2018 year. ( 6 marks)

b. Assume that the T-Division has fixed a selling price of R2,500 per unit with its external customers and cannot change this price until the end of its 2018 financial year. Include both internal (other division's 40,000 units) and external demand (as in [a] above) at maximum production capacity and determine an internal and external sales price/volume strategy that would maximise the T-Division’s profits in 2018. ( 6 marks)

QUESTION 2  (20 marks : 30 minutes)

You are required to:

a. Calculate the shortfall (if any) in hours of installation labour.  ( 2 marks)

b. Determine the best production plan, assuming that Tri-Secure wishes to maximize profits. ( 8 marks)

c. Assuming the best production plan in (b) is 1,275 of Day Light; 3,000 of Night Light and 1,800 of All Light, calculate the profit that this plan will produce. ( 4 marks)
d. Assume that, by increasing the installation labour rate from R8 to R12 per hour, the present labour shortage could be overcome. Advise the firm whether or not it should pay R12 per installation hour. (6 marks)

**HAND OUT THIS PAGE AFTER THE 15 MINUTES READING TIME**

**REQUIREMENTS FOR QUESTIONS 3 TO 4**

**QUESTION 3**

You are required to:

a. Calculate the Net Present Values (NPV) of continuing the use of the existing machine and of using the new Machine. (16 marks)

b. Determine and compare the profitability Indices (PI) of the existing and new machine. (4 marks)

**QUESTION 4**

You are required to:

a. Calculate XYZ Limited’s cost of debt ($K_d$) and cost of equity ($K_e$). (7 marks)

b. Determine XYZ Limited’s weighted average cost of capital (WACC). Also explain why it is an appropriate discount rate to use when different capital expenditure options are being evaluated. (4 marks)

c. Determine the current total value of XYZ Limited’s debentures. (4 marks)

d. Assume XYZ Limited’s debentures have a market value of R1 875 000 and the company wishes to raise another R3 million additional finance. Indicate the amounts of debt and equity that the company should raise based on the market values of its existing debt and equity to maintain its target debt to equity ratio. (5 marks)

e. Assume XYZ Ltd’s ordinary share value was R3,90 per share a year ago before reaching its current value of R4,00 and that the company has just announced a rights issue of 400 000 ordinary shares at an issue price of R3,70 per share. Calculate the:

   i. percentage total return (Rs) on the company’s ordinary shares over the last year. (3 marks)

   ii. value of a right per share on the newly announced rights issue. (4 marks)

f. Calculate A Ltd’s Expected return, Standard Deviation, Coefficient of Variation and Covariance of its returns with that of the Market. (7 marks)

g. Define the terms ‘business risk’, ‘financial risk’, ‘systematic’ and ‘unsystematic’ business risk. (6 marks)

**HAND YOUR ANSWERS TO ALL QUESTIONS IN AT 11H15**