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

NUST Limited trades in electrical products. The company expects its sales for the first three months of 20X8 to increase by 10 per cent each month over the previous month’s sales. Thereafter the monthly sales will remain constant for several months. NUST’s projected balance sheet at 31 December 20X7 is as follows:

\[
\begin{align*}
\text{R} & \quad \text{Cash} & 350\,000 \\
& \quad \text{Accounts receivable} & 2\,700\,000 \\
& \quad \text{Marketable securities} & 150\,000 \\
& \quad \text{Inventory} & 1\,540\,000 \\
& \quad \text{Buildings and equipment (Net Book Value)} & 6\,260\,000 \\
\hline
\text{Total Assets} & \quad 11\,000\,000 \\
\hline
& \quad \text{Accounts payable} & 1\,764\,000 \\
& \quad \text{Bond interest payable} & 125\,000 \\
& \quad \text{Property taxes payable} & 36\,000 \\
& \quad 10\% \text{ Bonds payable (issued 20X6 over 8 years)} & 3\,000\,000 \\
& \quad \text{Share capital} & 5\,000\,000 \\
& \quad \text{Retained earnings} & 1\,075\,000 \\
\hline
\text{Equity and Liabilities} & \quad 11\,000\,000 \\
\end{align*}
\]

Further budgeting information applicable to the first quarter of 20X8:
- Projected total sales for December 20X7 are R4 million. Credit sales are normally 75% of total sales. Normally 10% of credit sales are collected in the month of sale and the remainder is collected during the following month.
- NUST’s cost of goods sold is generally 70% of sales. Inventory is purchased on account only and 40% of each month’s purchases is paid during the month of purchase. The balance is paid during the following month. NUST maintains monthly closing inventory equal to half of the next month’s projected cost of goods sold.
- NUST’s other expected monthly expenses are as follows:
  - Sales salaries: R180 000
  - Advertising and promotion: R190 000
  - Administrative salaries: R210 000
  - Depreciation: R250 000
  - Interest on bonds: R25 000
  - Property taxes: R9 000
  - Sales commissions at 1% of sales

NUST plans to replace old equipment at a cost of R1 250 000 early in January 20x8 from available cash and marketable securities. NUST wants to keep a minimum cash balance of R250 000. If necessary, the remainder of the cost of replacing equipment would be financed by means of a 10% loan from a local bank for three months or more. However, such a loan should be settle by the end of the first quarter.

NUST’s will declare and pay dividends of R500 000 at the end of February 20X8. The interest on any short-term borrowing would be paid when the loan is repaid whilst interest on NUST’s bond is paid six-monthly, on 31 January and 31 July, for the preceding six-month period.

Property taxes are also paid half yearly on 28 February and 31 August for the preceding six-month period.

The requirements for this question will be handed out after the reading time.
Question 2

Below are extracts from the Actual Income Statement of ABC Ltd for 20X7

\[
\begin{array}{ll}
\text{Sales} & 2800000 \\
\text{Variable production cost} & 1000000 \\
\text{Selling costs - Fixed and variable} & 440000 \\
\text{Fixed cost - Administrative} & 120000 \\
\text{- Production*} & 500000 \\
\end{array}
\]

* Actual selling costs for the sales of 12,000 units would be R480,000.

ABC Ltd received a once-off order for a unit that requires the following materials, labour and overheads:

**Direct materials:**
- 5m² Wood which is not used regularly and in stock at R30/m². The replacement cost of the wood is R50/m² and its sales value is R40/m².
- A set of electric components that are also in regular use and in stock at R150. Its replacement cost is R180 and sales value is R30 only.

**Direct labour**
- 20 hours of skilled labour earning R90 per hour for normal time that is not available. Overtime would cost time and a half or the production of a least profitable product with a contribution of R240 per product and requiring 2 skilled labour hours per product could be reduced to free up time for this order.
- 15 hours of unskilled labour costing R40 per normal hour and time and a half for overtime. Ten idle normal hours of unskilled labour is available for this order.

**Overheads**
- 30 machine hours charged at R60 per hour including such as the supervisor’s salary, monthly depreciation and security costs. The only real additional machine cost relating to this order will be for 10 kilowatt of electric power that costs from R5 to R12 per kilowatt based on usage.

**Unit design**
- 5 Design hours. Designers are paid a monthly salary of R50,000 for 160 normal working hours. Designers are not paid for overtime and have sufficient idle hours to design this unit.

**Administration overhead** are normally allocated to products at 10% of total cost

ABC Ltd budgeted total fixed production overheads for 20X8 of R550,000 for the production of 11,000 units.

The requirements for this question will be handed out after the reading time.
Question 3

LMN Limited is an investment company. The company’s ordinary share prices at year-end (31 August) were:

- 2017 - R32,00;
- 2016 - R29,00;
- 2015 - R27,00.

The company paid its annual ordinary dividend of R7,5 million per share on its 5 million issued ordinary shares.

The company issued 2 000 8% debentures of R10 000 each at a 1% discount during 2014. The debentures are redeemable in two year’s time at a premium of 1%. Similar debentures currently yield a return of 7% per annum.

The company has surplus cash reserves and is considering an investment in either or both companies A Ltd and B Ltd that have the following historic returns:

<table>
<thead>
<tr>
<th>Year</th>
<th>Returns X Ltd</th>
<th>Returns Y Ltd</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>10%</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>2016</td>
<td>30%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>2017</td>
<td>20%</td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Other information

<table>
<thead>
<tr>
<th>X Ltd</th>
<th>Y Ltd</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected return ($\bar{R}_m$)</td>
<td>18,333%</td>
<td>25%</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>?</td>
<td>6,236%</td>
</tr>
<tr>
<td>Covariance of XY ($\text{Cov}_{XY}$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covariance ($\text{Cov}_{XM,YM}$) with market</td>
<td>-0,001667</td>
<td>0,0025</td>
</tr>
<tr>
<td>Beta ($\beta$)</td>
<td>?</td>
<td>0,00015</td>
</tr>
<tr>
<td>Risk free return</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assume a corporate normal tax rate of 30%

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

- $R_n = (1+r)(1+f)-1$
- $R_s = \frac{(Dps_l+(P_l-P_0))/P_0}{V_{\text{deb}}} = \sum^n ((1-t)/[1+r]^t) + (P/[1+r]^t)$
- $\rho_{XY} = \text{Cov}(X,Y)/\sigma_X\sigma_Y$
- $\sigma = \sum^n ((R_i-\bar{R}_i)^2)(P)/n$
- $\text{COV}_{ij} = \sum^n ((R_i-\bar{R}_i)(R_j-\bar{R}_j))(P)/n$
- $\sigma_p = \sqrt{w^2\sigma^2_X + w^2\sigma^2_Y + 2w_xw_y\text{Cov}_{XY}}$
- $\beta_i = \text{COR}_{im}(\sigma_i/\sigma_m)$ or $\beta_i = \text{Cov}(R_i,R_m)/\sigma_m^2$
- $\beta_p = w_x\beta_X + (1-w_x)\beta_Y$

The requirements for this question will be handed out after the reading time.
Mr S holds 60% of the shares in T (Pty) Ltd and Ms A holds the other 40%. At the end of the 2017 financial year Ms A offered R3 million for Mr S’s 60% interest. Extracts from the actual and forecast financial statements for the next three years are as follows:

### STATEMENT OF FINANCIAL POSITION

<table>
<thead>
<tr>
<th></th>
<th>Actual 2017 R’000</th>
<th>Forecast 2018 R’000</th>
<th>Forecast 2019 R’000</th>
<th>Forecast 2020 R’000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital employed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shareholders’ equity</td>
<td>1 775</td>
<td>2 261</td>
<td>2 544</td>
<td>2 878</td>
</tr>
<tr>
<td>Long term liabilities</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td><strong>Employment capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed assets Net Book Value</td>
<td>1 400</td>
<td>1 761</td>
<td>1 928</td>
<td>2 092</td>
</tr>
<tr>
<td><strong>Current asset</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory</td>
<td>525</td>
<td>550</td>
<td>566</td>
<td>636</td>
</tr>
<tr>
<td>Debtors</td>
<td>850</td>
<td>900</td>
<td>1 000</td>
<td>900</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>-550</td>
<td>-500</td>
<td>-500</td>
<td>-300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2 225</td>
<td>2 711</td>
<td>2 994</td>
<td>3 328</td>
</tr>
</tbody>
</table>

### FORECAST STATEMENT OF INCOME

<table>
<thead>
<tr>
<th></th>
<th>2018 R’000</th>
<th>2019 R’000</th>
<th>2020 R’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross profit</td>
<td>1 620</td>
<td>2 000</td>
<td>2 400</td>
</tr>
<tr>
<td>Depreciation</td>
<td>-110</td>
<td>-160</td>
<td>-200</td>
</tr>
<tr>
<td>Other expenses</td>
<td>-50</td>
<td>-110</td>
<td>-170</td>
</tr>
<tr>
<td>Interest on long term debt</td>
<td>-160</td>
<td>-150</td>
<td>-150</td>
</tr>
<tr>
<td><strong>Operating profit after interest</strong></td>
<td>1 300</td>
<td>1 580</td>
<td>1 880</td>
</tr>
<tr>
<td>Tax @ 28%</td>
<td>-364</td>
<td>-442</td>
<td>-526</td>
</tr>
<tr>
<td><strong>Profit after tax</strong></td>
<td>936</td>
<td>1 138</td>
<td>1 354</td>
</tr>
<tr>
<td>Dividends</td>
<td>-450</td>
<td>-810</td>
<td>-1 020</td>
</tr>
<tr>
<td>Increase in reserves</td>
<td>486</td>
<td>328</td>
<td>334</td>
</tr>
</tbody>
</table>

**NOTES:**

1. At the end of 2017 an independent expert valued T (Pty) Ltd’s fixed assets at R4 500 000.

2. The current yield to maturity on T’s long term debt is 13.86% per annum and its current market value is R595 000.

3. The company’s weighted average cost of capital is 18%. The current tax rate is 28%.

4. Over the next three years the company is expected to experience some major technological changes and volatile (changing) growth. Thereafter the growth in the company’s free cash flow (FCF) will slow to a constant rate of 2% per annum.

The requirements for this question will be handed out after the reading time.
HAND OUT THIS & NEXT PAGE AFTER THE 15 MINUTES READING TIME

REQUIREMENTS FOR QUESTIONS 1 and 2

QUESTION 1

You are required to prepare NUST’s budget for January and February 20X8 in the form of a:

- Sales budget (6 marks)
- Cash receipts (6 marks)
- Cash purchases (Cost of sales – opening inventory + closing inventory) (9 marks)
- Cash payments (9 marks)

QUESTION 2

You are required to:

a. Determine ABC Ltd’s breakeven sales units and its margin of safety for 20X7. (10 marks)

b. How many units would ABC Ltd have to sell to achieve a profit of R300 000 plus 10% of sales based on its 20X7 information. (3 marks)

c. Define relevant cost and determine the relevant cost to produce ABC Ltd’s once off order. Provide reasons for including ad excluding the costs given in the question. (10 marks)

d. List qualitative (non-financial) factors that ABC Ltd should consider before undertaking the once off order. (4 marks)

e. Determine ABC Ltd’s predetermined fixed production overhead rate per unit for 20X8 as well as its over/under recovered fixed production overheads for 20X8 assuming the 20X8 actual fixed production overheads are R525 000 for the actual production of 10 000 units. (3 marks)
QUESTION 3  
(34 marks : 45 minutes)

You are required to:

a. List the advantages and disadvantages of a sole proprietor compared to trading as a private company.  
( 3 marks)

b. Define a rational investor.  
( 1 marks)

c. Determine the nominal shareholders’ required return (Rn) if the risk free rate is 8% per annum, the risk factor is 5% per annum and inflation is 6% per annum.  
( 2 marks)

d. Calculate LMN Ltd’s ordinary share dividend yield and its percentage total return (Rs) for 2017.  
( 3 marks)

e. Calculate the total value of LMN Ltd’s debentures.  
( 5 marks)

f. Calculate the standard deviation (σ) and co-efficient of variation (CV) of X Ltd’s probable returns. Also explain the meaning of the standard deviation.  
( 7 marks)

g. Assume X Ltd’s expected return is 20% (Rx) its standard deviation of returns is 8,2% and using the other information provided in the question calculate the correlation co-efficient (ρxy) between X Ltd’s and Y Ltd’s expected returns.  
( 4 marks)

h. Calculate the beta (of X Ltd.  
( 1 mark)

i. Use the Capital Asset Pricing Model and the information provided above to calculate Y Ltd’s required return (Rc).  
( 2 marks)

j. In addition to the information provided in the question, assume the following for X Ltd: Expected return is 20%; Standard deviation is 8,2%; Beta (β) is -0,1 and Covariance of X Ltd and Y Ltd’s returns is -0,0017 Calculate the expected return (Rp), risk (σp) and beta (βp) of a portfolio comprising a 60% investment in X Ltd and a 40% investment in Y Ltd.  
( 6 marks)

QUESTION 4  
(26 marks : 39 minutes)

You are required to value Mr S’s shareholding in T (Pty) Ltd. Provide reasons for the valuation method you choose to use and test the reasonableness of your value using the net asset value. No complete valuation report is required.  
(26 marks)

HAND YOUR ANSWERS TO ALL QUESTIONS IN AT 11H15