ZCAS University

BAC1302 INTRODUCTION TO FINANCE

MID-SEMESTER TEST

MONDAY 23 OCTOBER 2023

TIME: 12:30-15:30HRS

TIME ALLOWED: THREE HOURS (plus 5 minutes to read through the paper)

INSTRUCTIONS:

1. Section A: this question is **compulsory** and must be attempted.

2. Sections B: **Answer Three (3)** questions from this section.

3. This question paper carries a total of **100 marks**.

4. Candidates must **not turn this page** until the invigilator tells them to do so.

SECTION A: Question 1 is compulsory and must be attempted.

Question 1

Madam G PLC is considering an investment in new technology. It is anticipated that this investment will enhance the company's future cash flow. The Investment at the start of the project would be K175,000. Assuming nil disposal value after five years. **Assume the cost of capital is 12%.**

The annual increment profit/(losses) relating to the investment are estimated as follows:

Period	Cashflows
Year 1	75,000
Year 2	50,000
Year 3	40,000
Year 4	60,000
Year 5	80,000

Required; Calculate the:

a) Simple payback Period and advise on how long it will take to recoup the initial investment if the standard payback period is 4 years and comment of the results. Write the one advantage and one disadvantage of it.   -   [10 marks]

b) Net Present Value (NPV) of the investment and comment on the viability of this investment project. State one merit and one demerit of NPV.   [12 marks]

c) Profitability Index (PI) of the investment and state pros and cons of this method. [4marks]

d) Accounting Rate of Return (ARR) and comment on the result if the target is 20%. And Internal rate of return (IRR).   [8 marks]

e) Based on the computation above, in your opinion state the method which you would recommend.   [6 marks]   [Total 40 marks]

SECTION B: Attempt any THREE questions in this section.

Question 2

QUEEN Plc has the following capital structure:

Capital	K'000
Ordinary shares – K0.25	6,000
Revenue reserves	3,000
9% preference shares at K0.5	2,500
12% K100 Irredeemable bonds	1,000
10% K100 redeemable Debentures	2,000
15% Bank loan	1,500
Total funds employed	**16,000**

The market price of the preference shares is 75n ex-div, the ordinary shares are quoted at K1.40 ex-div per share. Debenture stock is quoted at K93.40 per K100 nominal and will be redeemable at par in exactly 2 years. The irredeemable bonds are trading at par.

Queen plc has a marginal rate of corporation tax of 30%. The current risk-free rate of return is 5%, the market rate of return is 13% and the company has an equity beta value of 1.25.

Required:

Calculate the WACC based on the market values.   [Total 20 Marks]

Question 3

a) Explain in detail what financial intermediation is and the importance of such a function to an economy like Zambia.   (4 Marks)

b) Why should it be of concerned when you hear that financial intermediation is Low in Zambia and what do you think should be done to improve financial intermediation.
    (6 Marks)

c) List and explain the five finance functions in an organisation.   (10 Marks)

   TOTAL   [20 Marks]

Question 4

	K
Sales revenue	300,000
Gross profit	80,000
Inventory	30,000
Accounts receivables	50,000
Accounts payable	35,000

Required

a) Calculate the level of working capital   (6 Marks)

b) Calculate the cash operating cycle (to nearest day)   (6 Marks)

c) What are the possible *three* causes of overtrading?   (3 Marks)

d) Write any *five* signs of overtrading   (5 Marks)

TOTAL   [20 Marks]

Question 5

A company uses an item of inventory as follows; annual demand 24,000 units, purchase price K80, ordering costs K 24 per order, annual holding cost per unit is 5% of the purchase price and the economic order quantity is 540 units.

Required:

Assess whether it is financially beneficial for the business to order 1,500 units at a time in order to secure a 4% discount   [Total   20 marks]

END OF TEST

FORMULAE SHEET

1. IRR (YTM) = $A + \left[\frac{a}{a-b} \; x \; (B - A)\right]$

2. Spread = $3 \; x \; \sqrt[3]{\frac{0.75 \; x \; Variance \; of \; cashflow \; x \; Transaction \; cost}{interest \; per \; day}}$

3. EOQ = $\sqrt{\left(\frac{2 \cdot D \cdot C}{h}\right)}$

4. EOQ (Q) = $\sqrt{\left(\frac{2 \cdot F \cdot S}{i}\right)}$

5. CAPM: $r_i = r_f + \beta_i \; (r_m - r_f)$

6. . g = $\sqrt[n]{\left(\frac{Latest \; dividend}{Earliest \; dividend}\right)} - 1$

7. WACC = $re \left(\frac{Ve}{Ve+Vd}\right) + rd(1 - t)\left(\frac{Ve}{Ve+Vd}\right)$

8. Annual cost = $\left(\frac{100}{100-d}\right)^{\left(\frac{365}{t}\right)} - 1$

9. $K_d \; (r_d) = \dfrac{I \; (1 - tax)}{P_o} \; x \; 100$

10. $K_e = \dfrac{do \; (1 + g)}{P_o} + g$

PRESENT VALUE TABLE
Present value of 1, i.e. $(1 + r)^{-n}$ Where r = discount rate

n = number of periods until payment

Periods (n)	Discount rate (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239

Periods (n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065

ANNUITY TABLE

Present value of an annuity of 1, i.e.
$$\frac{1-(1+r)^{-n}}{r}$$
Where r = discount rate   n = number of periods until payment

Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	8.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606

Periods (n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3·696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
12	6.492	6.194	5.918	5.660	5.421	5.197	4.968	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675