CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 2 September 2021.   **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a)   In relation to industry and company analysis, discuss three generic competitive strategies that a company might employ in order to compete and generate profits.   (6 marks)

(b)   A market has the following limit on its book for a particular stock:

Buyer	Bid size (Number of shares)	Limit price Sh.	Offer size (Number of shares)	Seller
Keith	1,000	19.70		
Paul	200	19.84		
Ann	400	19.89		
Mary	300	20.02		
		20.03	800	Jack
		20.11	1,100	Margaret
		20.16	400	Jeff

Ian submits a day order to sell 1,000 shares limit Sh.19.83.

Required:

(i)   Assuming that no more buy orders are submitted on that day after Ian submits his order, determine Ian's average trade price.   (2 marks)

(ii)   Explain how the market will go about executing Ian's order in (b) (i) above.   (4 marks)

(c)   Blue Line Ltd. is expected to pay a Sh.21 dividend next year. The dividend will decline by 10% annually for the following three years. In year 5, the firm will sell off an asset worth Sh.100 per share. The year 5 dividend, which includes a distribution of some of the proceeds of the asset sale is expected to be Sh.60. In year 6, the dividend is expected to decrease to Sh.40 and this will be maintained for one additional year. The dividend is then expected to grow by 5% annually thereafter.

The required rate of return is 12%.

Required:
Calculate the value per share of the firm.   (4 marks)

(d)   Summarise four challenges that market regulation seeks to address in financial markets.   (4 marks)
(Total:20 marks)

QUESTION TWO

(a) (i) Differentiate between "free cash flow to firm (FCFF)" and "free cash flow to equity (FCFE)". (2 marks)

(ii) Outline two cases where free cash flow to firm (FCFF) is preferred over free cash flow to equity (FCFE) for valuation purposes. (2 marks)

(iii) Ndovu Ltd. has revenues amounting to Sh.20 million this year. Its future performance will be tracked to sales as follows:

1. Sales growth and the net profit margin are projected yearly as shown in the following table:

Year	1	2	3	4	5	6
Sales growth (%)	30	25	20	15	10	5
Net profit margin (%)	8	7.5	7.0	6	5.5	5

2. Fixed capital investment net of depreciation is projected to be 30% of the sales increase each year.

3. Working capital requirements are 7.0% of the projected shilling increase in sales each year.

4. Debt will finance 40% of the investments in net capital and working capital.

5. The company has a 12% required return on equity.

6. The firm has 1 million ordinary shares outstanding.

Required:
Using the two stage, free cash flow to equity (FCFE) approach, estimate the value of equity of Ndovu Ltd.

(Assume long term growth rate is 5%) (10 marks)

(b) Jaraz Metals Ltd. is expecting a return on equity (ROE) of 15% over each of the next five years. Its current book value is Sh.5.00 per share. The company pays no dividend and all earnings are reinvested. The required rate of return on equity is 10%. Forecasted earnings in years 1 through year 5 are equal to ROE times beginning book value.

Required:
The intrinsic value of the company using the residual income model.

(Assume that after five years, continuing residual income falls to zero) (6 marks)
(Total: 20 marks)

QUESTION THREE

(a) Analyse five elements that an equity analyst should consider while conducting a thorough company analysis. (5 marks)

(b) Mwendwa Kilonzo, an investor at the Securities Exchange, bought Sh.25 million worth of Talino Ltd.'s shares. Her contribution was 40% with the remainder being borrowed from her stock broker.

Required:
(i) The leveraged position ratio. (1 mark)

(ii) The return on the equity investment based on the leveraged position in (b) (i) above assuming the share price rises by 10%. (1 mark)

(iii) The return on equity investment on leveraged position assuming the share price falls by 10%. (1 mark)

(c) Suppose an equity analyst estimates a 2.1% dividend yield, long-term inflation of 3.1%, earnings growth rate of 4%, a repurchase yield of 0.5% and price to earnings (P/E) ratio of 3%.

Required:
(i) Using the information above, formulate the Grinold-Kroner Model. (2 marks)

(ii) Compute the expected return on the share using the Grinold-Kroner Model in (c) (i) above. (2 marks)

(iii) Highlight four advantages of the Grinold-Kroner Model. (4 marks)

(d) The following data was obtained from the financial statements of Watamu Limited for the year ended 31 December 2019 and 31 December 2020:

	2020	2019
Total shareholders equity (Sh."million")	18,503	17,143
Net income available to ordinary shareholders (Sh."million")	3,526	3,056
Price per share (Sh.)	16.80	15.30
Number of shares outstanding (million)	3,710	2,790

Required:
For each year, compute:

(i)   Book value per share (BVPS).   (2 marks)

(ii)   Market to book ratio at end of 2019.   (2 marks)
(Total: 20 marks)

QUESTION FOUR

(a)   Rafiki Ltd.'s share is currently selling for Sh.16.00. The current earnings of the company are Sh.3.00 per share and current dividend is Sh.1.50 per share. Dividends are expected to grow at a rate of 3.5% per year indefinitely. The risk free rate is 4%, the market equity risk premium is 6% and the company's beta is estimated to be 1.1.

Required:
Justified leading and trailing price to earnings (P/E) ratios for the company.   (4 marks)

(b)   Panda Ltd. has recently paid a dividend of Sh.0.75, which has been growing at a rate of 10% per annum. This growth rate is expected to decline to 5% over the next five years and then remain at 5% indefinitely. The current market price per share is Sh.30.

Required:
Expected return of Panda Ltd. using H-model.   (4 marks)

(c)   An analyst has gathered the following information for Alpha Ltd.:

1.   Expected earnings per share (EPS) is Sh.5.70
2.   Expected dividends per share (DPS) is Sh.2.70.
3.   Dividends are expected to grow at a rate of 2.75% per year indefinitely.
4.   The required rate of return is 8.5%.

Required:
The price/earnings (P/E) multiple for the company.   (2 marks)

(d)   A financial analyst has gathered the following information about similar companies in the banking sector:

	First Bank	Prince Bank	Pioneer Trust
Price to book (P/B) ratio	1.10	0.60	0.60
Price to earnings (P/E) ratio	8.40	11.10	8.30

Required:
Determine the company(s) that is most likely to be undervalued.   (2 marks)

(e)   Two equity analysts at an investment bank are provided with the following financial information relating to Jasper Limited:

Jasper Limited selected financial information (Sh.millions)

	Years ended		
	2018	**2019**	**2020**
Net sales	46.8	50.5	53.9
Cost of sales	18.2	18.4	18.8
Gross profit	28.6	32.1	35.1
Selling general and administrative (SG&A) expenses	19.3	22.5	25.1
Operating income	9.3	9.6	10.0
Interest expense	0.5	0.7	0.6
Income before provision for income tax	8.8	8.9	9.4
Provision for income taxes	2.8	2.8	3.1
Net income	6.0	6.1	6.3

The analysts are required to forecast the year 2021 income statement and outline the key assumptions used in their analysis.

For year 2021, they are required to assume nominal Growth Domestic Product (GDP) growth rate of 3.6% based on expectations of real GDP growth of 1.6% and inflation rate of 2.0%.

The summary of key assumptions are:

Metric	Equity analyst 1	Equity analyst 2
Net sales	Net sales will grow at the average annual growth rate in net sales over 2018-2020 time period.	Net sales will grow by 50 basis points slower than nominal GDP.
Cost of sales	2021 gross margin will be the same as the average annual gross margin over 2018-2020 time period.	2021 gross margin will increase by 20 basis points from 2020.
Selling, general and administrative (SG&A) expenses	2021 SG&A/net sales ratio will be the same as the average ratio over the 2018-2020 time period.	2021 SG&A/net sales ratio will be the same as 2020 ratio.

Required:

(i)   Calculate equity analyst 2's forecast for cost of sales in the year 2021.   (4 marks)

(ii)   Calculate equity analyst 1's forecast for selling, general and administrative expenses in the year 2021.
                                                                                          (4 marks)
                                                                                  (Total: 20 marks)

QUESTION FIVE

(a)   Samson Mwagire is interested in trading shares at the Securities Exchange. He approached John Babu, an accomplished equity analyst at Bambito Financial Services, who advised him to use technical analysis to predict share prices.

Required:
In relation to the above statement:

(i)   Highlight three assumptions of technical analysis.   (3 marks)

(ii)   Summarise four limitations of using technical analysis in predicting share prices.   (4 marks)

Present Value Interest factor of 1 Received at the End of *n* Periods at r Percent:

$$PVIF_{r,n} = 1 / (1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561	0.7432	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.5787	0.5245	0.5120	0.4552
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718	0.5523	0.4823	0.4230	0.4096	0.3501
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972	0.4761	0.4019	0.3411	0.3277	0.2693
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759	0.3538	0.2791	0.2218	0.2097	0.1594
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269	0.3050	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2076	0.1869	0.1685	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625	0.1452	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413	0.1252	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229	0.1079	0.0649	0.0397	0.0352	0.0195
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069	0.0930	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929	0.0802	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0376	0.0208	0.0180	0.0089
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703	0.0596	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0261	0.0135	0.0115	0.0053
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0181	0.0088	0.0074	0.0031
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	0.0601	0.0491	0.0402	0.0329	0.0151	0.0071	0.0059	0.0024
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	0.0532	0.0431	0.0349	0.0284	0.0126	0.0057	0.0047	0.0018
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	0.0471	0.0378	0.0304	0.0245	0.0105	0.0046	0.0038	0.0014
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	*
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0017	0.0005	*	*
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169	0.0123	0.0089	0.0065	0.0048	0.0014	*	*	*
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0007	*	*	*
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	*	*	*	*

Present Value Interest factors for Annuity of 1 Discounted at r Percent for *n* Periods:

$$PVIFA_{r,n} = [1 - 1/(1+r)^n]/r$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845	3.6847	3.3255	3.0205	2.9514	2.6427
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.0310	3.5655	3.4631	3.0190
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.1925	3.6819	3.5705	3.0915
11	10.368	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	4.5327	3.9124	3.7801	3.2233
14	13.004	12.106	11.296	10.563	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	4.6106	3.9616	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	4.6755	4.0013	3.8593	3.2682
16	14.718	13.578	12.561	11.652	10.838	10.106	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7296	4.0333	3.8874	3.2832
17	15.562	14.292	13.166	12.166	11.274	10.477	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	4.7746	4.0591	3.9099	3.2948
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	4.8122	4.0799	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	4.8696	4.1103	3.9539	3.3158
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6487	8.0751	7.5620	7.1016	6.6870	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	4.9789	4.1601	3.9950	3.3321
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8786	8.1924	7.5979	7.0790	6.6231	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333