PRIFYSGOL ABERYSTWYTH UNIVERSITY

SEMESTER TWO 2026

ABERYSTWYTH BUSINESS SCHOOL

ABM1620: PORTFOLIO ANALYSIS AND MANAGEMENT

Time allowed: **THREE HOURS**

Answer ALL questions in SECTION A and any TWO in SECTION B

Present value factor tables are included in the back of this examination paper.

Maths graph sheets will be made available in the examination hall.

Total marks available: 100

This paper contributes 70% of the overall module mark.

This is an UNSEEN BOOK EXAMINATION.

CALCULATORS ARE PERMITTED (Casio FX83, FX99-1or FX85 models only)

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STUDENTS MAY SUBMIT ANSWERS TO THIS PAPER IN EITHER WELSH OR ENGLISH

Once seated, students may complete the front cover of the answer book(s) and the attendance slip ONLY.

DO NOT TURN THE EXAMINATION QUESTION PAPER OVER UNTIL INSTRUCTED TO DO SO.

SECTION A - COMPULSORY QUESTION

QUESTION A1 (28 marks)

(a) Assume that an investor has a logarithmic utility function defined by U (W) = ln (W) and has a current level of wealth which is £5,000. Use this information to answer questions (i) and (ii) below:

i. Suppose the investor is exposed to a situation that results in a 40/60 chance of winning or losing £1,000. If the investor can buy insurance that completely removes the risk for a fee of £300, determine whether the investor will buy the insurance or take the gamble. **[4 marks]**

ii. Suppose the investor accepts the gamble outlined in (i) and loses so that his/her wealth is reduced to £4,000. If the investor is faced with the same gamble and has the same offer of insurance as before, determine whether the investor will buy the insurance a second time. Give reasons to support your answers. **[4 marks]**

(b) Assume the market return is 14% and the risk-free rate is 8%. The average annual returns for managers of the funds: W, X and Y are 12%, 16% and 18%, respectively. The funds' corresponding betas are 0.9, 1.05 and 1.20. What are the Treynor values for the market and managers? Plot your values on the Security Market Line (T Measure). Write notes and comment on your results and answers above. **[7 marks]**

(c) Assume the market return is 14% with a standard deviation of 20%, and the risk-free rate is 8%. The average annual returns for managers of the funds: D, E and F are 13%, 17% and 16%, respectively. The corresponding standard deviations are 18%, 22% and 23%. What are the Sharpe measures for the market and managers? Write notes to compare Treynor and Sharpe measures. **[6 marks]**

(d) The Theory of Choice states that investors choose from among opportunities in opportunity sets by specifying their utility functions. The set of utility functions can be represented by a set of indifference curves.

Required:
Critically discuss how the investor makes investment choices considering their utility function. Furthermore, with the investor's budget constraint (line) in place and with the aid of diagram(s), explain how the investor's utility function is interpreted across a range of indifference curves. **[7 marks]**

Turn overleaf

SECTION B – ANSWER ANY THREE QUESTIONS

QUESTION B1 (24 marks)

(a) An analyst expects a risk-free return of 4.5% and a market return of 14.5%, and the returns for Stocks A and B are shown in Table 1.

Table 1 – Stock information

Stock	Beta	Analyst's estimated return
A	1.2	16%
B	0.8	14%

i. Show on a graph where stocks A and B would plot on the security market line (SML) if they were fairly valued using the capital asset pricing model (CAPM).
[5 marks]

ii. Show on a graph where stocks A and B would plot on the security market line according to the returns estimated by the analyst and shown in Table 1. State whether stocks A and B are undervalued or overvalued if the analyst uses the SML for strategic investment decisions. **[5 marks]**

(b) Critically discuss the reasoning behind the contention that there would never be a true growth economy in an entirely competitive economy. **[3 marks]**

(c) A biotechnology firm is growing at a compound rate of more than 21% a year. Its return on equity (ROE) is over 30% and retains about 70% of its earnings. The stock of this company is priced at about 65 times next year's earnings. Discuss whether you consider this a growth company or a growth stock. **[3 marks]**

(d) Critically explain and analyse the portfolio management process. In your answer, discuss each stage of the process and show how the different stages are linked together.
[8 marks]

Turn overleaf

QUESTION B2 (24 marks)

(a) Critically discuss the differences between the top-down and bottom-up approaches in security valuation. In your answer, critically evaluate the main assumptions that cause the differences between these two approaches. **[4 marks]**

(b) Critically discuss why you would expect the required rate of return for an emerging market investor in China common stocks to be different from the expected required rate of return for a mature market investor in United States common stock. Critically discuss the factors that would determine the required rate of return for common stocks in the United States and China markets. **[10 marks]**

(c) Assume in 2025, a £10,000 par value bond due in 2030 with a 10% coupon rate will pay £500 every six months for its 5-year life. Determine the bond value if the required rate of return is 10%. Additionally, determine the bond value if the required rate of return increases to 12%. Comment on your answers. **[10 marks]**

Turn overleaf

QUESTION B3 (24 marks)

(a) Assume that each of the following changes is independent (i.e., except for this change, all other factors remain unchanged). In each case, critically discuss what will happen to the earnings multiplier:

i. The return on equity increases **[2 marks]**
ii. The aggregate debt-equity ratio declines **[2 marks]**
iii. Overall productivity of capital increases **[2 marks]**
iv. The dividend-payout ratio declines **[2 marks]**

(b) Consider the following closing numbers for a stock market index:

Day	DJIA
1	14010
2	14100
3	14165
4	14080
5	14070
6	14150
7	14220
8	14130
9	14250
10	14315
11	14240
12	14310

Required:

1. Calculate a four-day moving average for days 4 through 12. **[8 marks]**

2. Assume the index closes at 14300 on day 13. As an analyst, advise your clients on whether this would be a buy or a sell decision. **[3 marks]**

(c) Critically discuss the four main asset allocation strategies and how they differ from one another. Explain whether the value-growth anomaly is consistent with the existence of an efficient stock market. **[5 marks]**

Turn overleaf

QUESTION B4 (24 marks)

(a) Critically discuss the rationale behind the use of financial ratios instead of absolute numbers by financial analysts. Use examples to illuminate your answer further. Besides comparing a company's performance to its total industry, discuss what other comparisons should be considered within the industry. **[7 marks]**

(b) Describe the components of business risk and discuss how the components affect the variability of operating earnings (EBIT). **[7 marks]**

(c) Critically analyse the price and earnings momentum strategies, showing the key differences and similarities between the two strategies. Discuss the conditions under which both strategies are expected to produce similar portfolios. **[7 marks]**

(d) Assume a rise in inflation is expected in the coming year. You expect natural resource stocks such as mining and oil companies to perform well over the next three to six months. As an active portfolio manager, describe the various methods available to take advantage of this forecast. **[3 marks]**

END OF PAPER

Present Value Factor Tables Follow

Present value table

Present value of 1.00 unit of currency, that is $(1 + r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods (n)	Interest rates (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
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
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
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Please note that the above Table continues on the next page for interest rates from 11% - 20%.

Periods	Interest rates (*r*)									
(*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
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
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	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Cumulative present value of 1.00 unit of currency per annum

Receivable or Payable at the end of each year for n years $\left[\frac{1-(1+r)^{-n}}{r}\right]$ **(PV of an Annuity)**

Periods (n)	Interest rates (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	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
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
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
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Please note that the above Table continues on the next page for interest rates from 11% to 20%.

Periods (n)	Interest rates (r)									
	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
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	7.793	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
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870