ASSOCIATION OF ACCOUNTING TECHNICIANS OF SRI LANKA

AA3 EXAMINATION - JULY 2015

(AA32) MANAGEMENT ACCOUNTING AND FINANCE

02-08-2015
Morning
[9.00 – 12.00]

No. of Pages : 14
No. of Questions : 10

- **Instructions to candidates** (Please Read Carefully)**:**

(1) ***Time:*** *03 hours.*

(2) ***Structure of Question Paper and the Marks Allocation:***

Section	Requirement	Marks
A	All questions are compulsory.	20
B	All questions are compulsory.	30
C	Only two out of three questions should be answered.	50
Total Marks		100

(3) ***Answers*** *should be in* ***one language****, in the* ***medium*** *applied for, in the* ***booklets*** *provided.*

(4) *Submit all workings and calculations. State clearly assumptions made by you, if any.*

(5) *Use of Non-programmable calculators is* ***only*** *permitted.*

(6) ***Action Verb Check List*** *with definitions is attached. Each question will begin with an* ***action verb****. Candidates should answer the questions based on the* ***definition*** *of the verb given in the Action Verb Check List.*

(7) ***Formulae Sheets*** *and* ***Mathematical Tables*** *are attached.*

SECTION A

Four (04) compulsory questions

(Total 20 marks)

Question 01

Personal Finance Management through Savings and Investments is vital for the success of an individual and his/her family. However, due to the limited financial resources, certain financial needs will need to be supported and fulfilled through the use of borrowings.

You are required to,

(a) **State** two(02) examples of "good debt" for an individual. (02 marks)

(b) **Differentiate** Savings from Investments. (03 marks)

(Total 05 marks)

Question 02

Following information has been extracted from the annual accounts of **3 Star PLC** as at 31st March 2015 and 31st March 2014:

	As at 31st March 2015 (Rs.'000)	**As at 31st March 2014 (Rs.'000)**
Inventory	1,480	1,920
Trade Receivables	2,720	1,050
Trade Payables	1,910	2,320

Sales and the cost of goods sold for the year ended 31st March 2015 were Rs.10,680,000/- and Rs.8,700,000/- respectively.

Assume 365 days a year.

You are required to,

Compute the length of the working capital cycle for the year ended 31st March 2015. (05 marks)

Question 03

Yard Ltd. produces and sells fishing boats. The company has recently received an order from a client to supply 10 small paddling boats within a month for Rs.100,000/- each. If the company decides to accept this order, following cost information would have to be considered:

(1) **Material:** 12 square meters of fibre are required for a boat. At present, 20 square meters of fibre are available in the stores with the total book value of Rs.120,000/-. The current market value of fibre is Rs.5, 800/- per square meter.

(2) **Labour:** Labour requirement is 80 hours per boat. Due to the low demand for fishing boats, the company expects to use 5 idle staff for the job. An employee in the manufacturing section is required to work 160 hours a month (20 working days) and is paid with a monthly salary of Rs.60,000/-. In addition, each of the manufacturing staff involved is paid with an incentive commission of Rs.15,000/- per order.

(3) **Overhead:** The budgeted overhead cost is Rs.3,000,000/- for a month and is absorbed at a rate of Rs.50/- per labour hour. It is estimated that monthly overhead cost of the company would increase by Rs.25,000/- per boat with this order.

You are required to,

(a) **Identify** and **Compute** the relevant costs and irrelevant costs of each cost component and **state** reason(s) why you consider them as relevant or irrelevant for the acceptance of the order. (04 marks)

(b) **State** whether the company should accept the order on the basis of relevant costs. (01 mark)

(Total 05 marks)

Question 04

MKT Ltd. is planning to introduce a new product to the local market. It is evaluating three different marketing campaigns, of which, one will be selected. The possible outcome of each campaign is as follows:

Customer Reaction	Campaign 1		Campaign 2		Campaign 3	
	Expected Sales (units)	Probability	Expected Sales (units)	Probability	Expected Sales (units)	Probability
High	100,000	30%	120,000	45%	80,000	30%
Medium	75,000	60%	65,000	45%	60,000	40%
Low	40,000	10%	30,000	10%	40,000	30%
Cost of the campaign	Rs.6,500,000/-		Rs.9,550,000/-		Rs.3,450,000/-	

Variable cost of the new product will be Rs.50/- per unit and the new product is to be priced at Rs.140/- per unit.

You are required to,

(a) **Calculate** the total expected sale value of each campaign. (03 marks)

(b) **Identify** which marketing campaign should be selected based on the expected net income. (02 marks)

(Total 05 marks)

End of Section A

SECTION B

Three (03) compulsory questions

(Total 30 marks)

Question 05

Locus Ltd. produces and sells two different products, **X** and **Y**, which are processed by two Departments - **P** and **Q**. Some of the information relating to these products is as follows:

	X	Y
Selling Price (Rs.)	12,000	7,500
Profit Volume (P/V) Ratio	25%	32%

Number of working hours required for the processing is given below:

	Hours required per Unit	
	X	Y
Department **P**	20	20
Department **Q**	30	10

The maximum capacity of Department **P** and **Q** is limited to 12,000 and 9,600 working hours per week, respectively. Sales Manager confirms that total weekly production could be sold in the market.

You are required to,

(a) **Compute** the contribution per unit and the contribution per limiting factor(s) separately for both products. (02 marks)

(b) **Identify** the following:

- (i) Decision variables.
- (ii) Objective function.
- (iii) Constraints in the form of equations. (02 marks)

(c) **Solve** constraint equations algebraically and **state** the product mix that maximize the contribution (Ignore production of single product). (05 marks)

(d) **Compute** the total contribution per week for the above product mix. (01 mark)

(Total 10 marks)

Question 06

Nano Sport PLC is considering to raise Rs.100 million debt capital for its expansion project. At present, the book value of the equity capital of the company is Rs.150 million while the market value is Rs.250/- million. The cost of equity is estimated as 15%.

The company is considering following three(03) options for raising of debt capital.

Option 1 : 5 year Redeemable debentures of Rs.100/- each with an annual interest rate of 15%. The market price of the debenture is Rs.102/-.

Option 2 : Irredeemable debentures of Rs.100/- each with an annual interest rate of 13%. The market price of the debenture is Rs.93/-.

Option 3 : 5 year bank loan with an annual interest rate of 14.5 %

Ignore Taxation.

You are required to,

(a) **State** two(02) advantages that a company could gain from issuing debentures for debt capital compared to a bank loan. (02 marks)

(b) **Compute** cost of debt under each option and **identify** the cheapest option. (06 marks)

(c) **Compute** weighted average cost of capital (WACC) if the company opts for the cheapest option. (02 marks)

(Total 10 marks)

Question 07

Slippers Ltd. manufactures beach slippers under its brand name and sells through independent retailers. The annual demand is expected to be 144,000 pairs of slippers (units). Each pair is sold to retailers at Rs.700/- whereas the market price is Rs.800/-.

The cost of a pair of slippers is given below:

	Rs.
Direct material	220
Direct labour	110
Variable overhead	70
Fixed overhead	90

Proposed arrangement:

The company is considering the possibility of having its own sales outlets and selling the slippers at the market price, without using independent retailers. The fixed cost of such a sales outlet would be Rs.330,000/- per month and sales would be 3,000 pairs per month.

You are required to,

(a) **Compute** the expected annual profit and the break-even number of units of the company if it continues to sell through independent retailers. (02 marks)

(b) **Compute** the number of own sales outlets required to meet the annual demand and the expected annual profit under the proposed arrangement. (03 marks)

(c) **Compute** the new break-even units and the break-even number of own sales outlets under the proposed arrangement. (02 marks)

(d) **Compute** the revised market price per unit under the proposed arrangement, if the company requires to achieve the annual profit expected under the existing arrangement (sell through independent retailers) by revising the market price. *(Assume demand will remain unchanged)*

(03 marks)
(Total 10 marks)

End of Section B

SECTION C

Answer two (02) questions only.

(Total 50 marks)

Question 08

Zenith Ltd. produces animal food packs of 5 kg each that are sold in Super Markets. It operates a standard costing method considering its' advantages to the company. Standard cost details for a 5 kg pack is as follows:

Direct material **A**	4 Kg @ Rs.20/-
Direct material **B**	2 Kg @ Rs.55/-

From the month of January 2015, it was decided to revise the standard price of material **B** as Rs.50/- per Kg considering changes to the tariff system prevailing in the country. Actual data for the month of January is as follows:

Direct material **A**	15,100 Kg @ Rs.21/-
Direct material **B**	7,700 Kg @ Rs.48/-

Direct material usage variance is Rs.6,600/- (Adverse).

You are required to:

(a) (i) **State** three(03) advantages of standard costing. (03 marks)

(ii) **State** three(03) limitations of standard costing. (03 marks)

(b) **Compute** direct material price variance. (02 marks)

(c) **Compute** direct material cost variance using direct material usage and direct material price variances. (02 marks)

(d) **Compute** the following:

(i) Total standard direct material cost. (02 marks)

(ii) Actual number of packs produced. (02 marks)

(e) **Compute** the following variances:

(i) Direct material mix (04 marks)

(ii) Direct material yield (04 marks)

(iii) Direct material planning (03 marks)

(Total 25 marks)

Question 09

SJ Ltd. a medium size manufacturing company, follows a traditional budgeting mechanism. **SJ Ltd.** is planning to introduce a marketing campaign from the month of June 2015 to improve its performance. Accordingly, following changes in the financial and operating environment are expected after the marketing campaign:

(1) All sales continue to be made on credit terms and all debtors to be given maximum credit period.

(2) Debtor's credit period is extended from one month to two months for new sales. However, as a result of extended credit terms, 2% of debtors are expected to be bad debts.

(3) Number of sales units will increase monthly by 5%.

(4) 60% of the next month's sales will be maintained in closing stock from the month of June.

(5) Materials will be purchased Just-in-time from suppliers and 50% of the payment will be settled in the same month, and balance will be settled in the following month.

(6) All other payments (labour and overhead) will be made in the following month as usual.

(7) Sales commission of 1 %will be paid in cash at the time of sale.

A bank loan of Rs.1,100,000/- will be taken during the month of July 2015.

Per unit cost and other relevant financial data are given below:

	Rs.	Rs.
Sales price		50
(-) Variable Cost		
Direct material (0.5Kg)	18	
Direct labour	12	
Variable overhead	10	
Total variable cost		(40)
Contribution		**10**

Annual fixed overhead is estimated to be Rs.2,400,000/- and incurred and paid evenly during the year. The annual depreciation charge is accounted for 20% of the total fixed overhead.

Balances extracted from the financial statements as at 31st May 2015 are as follows:

	Rs.
Direct material stock	153,000
Finished goods stock (at marginal cost)	400,000
Debtors	1,200,000
Cash	18,000
Accrued labour and overhead	440,000
Creditors	184,000

You are required to:

(a) **Calculate** the number of units sold during the month of May 2015. (02 marks)

(b) **Prepare** following budgets for the month of June, July and August 2015 on a monthly basis:

(i) Sales budget. (03 marks)

(ii) Production budget. (03 marks)

(iii) Direct material purchase budget. (03 marks)

(iv) Cash budget. (08 marks)

(c) **Explain** the four(04) perspectives of the Balanced Scorecard System. Your explanation must be supported with two(02) performance measures under each perspective. (06 marks)

(Total 25 marks)

Question 10

PK Ltd. manufactures and sells product **Q** to its' distributors. At present, the company operates at its' full capacity. It manufactures and sells 30,000 units of **Q** each month at a selling price of Rs.125/- per unit, with a variable manufacturing cost of Rs.85/- per unit.

The product is manufactured using a specialized machine which has been in use for over 10 years and has a scrap value of Rs.400,000/- at present.

With the recent development in technology, the company has experienced the need to invest in a new machine, to provide them better efficiency, lower costs and higher capacity. The Production Manager has carried out a research of the machines available in the market and has identified a machine which is more suitable for **PK LTD.**

This machine is expected to have a useful life of 5 years and the initial investment is Rs.42 million and no scrap value at the end of 5 years. The production capacity is 600,000 units per annum and the variable cost of manufacturing is Rs.70/- per unit in the first year. With the payment of the initial Rs.42 million, the machine vendor offers free service for the first 3 years, after which the annual service cost is expected to be Rs.200,000/- and Rs.250,000/- for year 4 and 5 respectively.

The company has forecasted the following for the next 5 years.

Year	1	2	3	4	5
Monthly sales (units)	30,000	32,000	38,000	40,500	43,000
Sales price per unit (Rs.)	125	125	125	130	130

The variable cost of manufacturing is expected to increase by 8% per annum due to the inflation, wage increases etc. The annual fixed overheads, excluding depreciation and service cost are Rs.5,850,000/- at present and this is expected to remain constant over the next 5 years.

The company pays tax at the rate of 28% and for this machine a capital allowance of 33 1/3 % per annum is available. Assume that this machine is being financed through internally generated funds and there is no interest cost.

You are required to:

(a) **Recognize** the cash flows relates to this machine. (06 marks)

(b) **Calculate** the following based on the cash flows prepared above for this machine:

(i) Payback period. (03 marks)

(ii) Accounting rate of return. (03 marks)

(c) **Calculate** the Net Present Value (NPV) of this investment using a discount factor of 15% and **Assess** with reasons whether **PK Ltd.** should go ahead with the new machine or not. (06 marks)

(d) **Calculate** the Internal Rate of Return (IRR) of the new machine. (04 marks)

(e) **Explain** briefly, the importance of the concept of time value money in capital expenditure decisions. (03 marks)

(Total 25 marks)

End of Section C

ACTION VERB CHECK LIST

Knowledge Process	Verb List	Verb Definitions
Level 01 **Comprehension** Recall & explain important information	**Define**	Describe exactly the nature, scope, or meaning.
	Draw	Produce (a picture or diagram).
	Identify	Recognize, establish or select after consideration.
	List	Write the connected items one below the other.
	Relate	To establish logical or causal connections.
	State	Express something definitely or clearly.
	Calculate/Compute	Make a mathematical computation
	Discuss	Examine in detail by argument showing different aspects, for the purpose of arriving at a conclusion.
	Explain	Make a clear description in detail revealing relevant facts.
	Interpret	Present in an understandable terms.
	Recognize	To show validity or otherwise, using knowledge or contextual experience.
	Record	Enter relevant entries in detail.
	Summarize	Give a brief statement of the main points (in facts or figures).

Knowledge Process	Verb List	Verb Definitions
Level 02 **Application** Use knowledge in a setting other than the one in which it was learned / Solve closed-ended problems	**Apply**	Put to practical use.
	Assess	Determine the value, nature, ability, or quality.
	Demonstrate	Prove, especially with examples.
	Graph	Represent by means of a graph.
	Prepare	Make ready for a particular purpose.
	Prioritize	Arrange or do in order of importance.
	Reconcile	Make consistent with another.
	Solve	To find a solution through calculations and/or explanation.

Knowledge Process	Verb List	Verb Definitions
Level 03 **Analysis** Draw relations among ideas and compare and contrast / Solve open-ended problems.	**Analyze**	Examine in detail in order to determine the solution or outcome.
	Compare	Examine for the purpose of discovering similarities.
	Contrast	Examine in order to show unlikeness or differences.
	Differentiate	Constitute a difference that distinguishes something.
	Outline	Make a summary of significant features.

FORMULAE AND MATHEMATICAL TABLES

Quantitative Finance:

Simple interest:
$S = X\,(1 + nr)$

Compound Interest:
$S = X\,\{1 + r\}^n$

Discounting:

Present Value = Future Value $\times \frac{1}{(1+r)^n}$

Perpetuity:

Present Value of perpetuity = $\frac{A}{r}$

Accounting Rate of Return:

$$\text{ARR} = \frac{\text{Average annual profits from the investment}}{\text{Average investment}} \text{ X } 100\%$$

$$\text{ARR} = \frac{\text{Estimated average profits}}{\text{Estimated initial investment}} \text{ X } 100\%$$

Internal Rate of Return:

$$IRR = \frac{[N_1 r_2 - N_2 r_1]}{[N_1 - N_2]} \text{ X } 100\%$$

Or

$$IRR = a\% + \frac{NPV_A}{[NPV_A - NPV_B]}\,(b - a\,)\%$$

Inventory Control:

Economic Order Quantity:

With instantaneous replenishment:

$$\sqrt{\frac{2C_0D}{C_n}}$$

With gradual replenishment:

$$\sqrt{\frac{2C_0D}{C_n\{1 - D/R\}}}$$

PRESENT VALUE OF RS.1/-

Period \ Rate of Interest	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
21	0.811	0.660	0.538	0.439	0.359	0.294	0.242	0.199	0.164	0.135
22	0.803	0.647	0.522	0.422	0.342	0.278	0.226	0.184	0.150	0.123
23	0.795	0.634	0.507	0.406	0.326	0.262	0.211	0.170	0.138	0.112
24	0.788	0.622	0.492	0.390	0.310	0.247	0.197	0.158	0.126	0.102
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092
26	0.772	0.598	0.464	0.361	0.281	0.220	0.172	0.135	0.106	0.084
27	0.764	0.586	0.450	0.347	0.268	0.207	0.161	0.125	0.098	0.076
28	0.757	0.574	0.437	0.333	0.255	0.196	0.150	0.116	0.090	0.069
29	0.749	0.563	0.424	0.321	0.243	0.185	0.141	0.107	0.082	0.063
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057

PRESENT VALUE OF RS.1/-

(Continued)

Period \ Rate of Interest	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	0.074	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
21	0.112	0.093	0.077	0.064	0.053	0.044	0.037	0.031	0.026	0.022
22	0.101	0.083	0.068	0.056	0.046	0.038	0.032	0.026	0.022	0.018
23	0.091	0.074	0.060	0.049	0.040	0.033	0.027	0.022	0.018	0.015
24	0.082	0.066	0.053	0.043	0.035	0.028	0.023	0.019	0.015	0.013
25	0.074	0.059	0.047	0.038	0.030	0.024	0.020	0.016	0.013	0.010
26	0.066	0.053	0.042	0.033	0.026	0.021	0.017	0.014	0.011	0.009
27	0.060	0.047	0.037	0.029	0.023	0.018	0.014	0.011	0.009	0.007
28	0.054	0.042	0.033	0.026	0.020	0.016	0.012	0.010	0.008	0.006
29	0.048	0.037	0.029	0.022	0.017	0.014	0.011	0.008	0.006	0.005
30	0.044	0.033	0.026	0.020	0.015	0.012	0.009	0.007	0.005	0.004

CUMULATIVE PRESENT VALUE OF RS.1/-

Period \ Rate of Interest	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	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.292	8.649
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.442	8.772
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.580	8.883
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.707	8.985
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077
26	22.795	20.121	17.877	15.983	14.375	13.003	11.826	10.810	9.929	9.161
27	23.560	20.707	18.327	16.330	14.643	13.211	11.987	10.935	10.027	9.237
28	24.316	21.281	18.764	16.663	14.898	13.406	12.137	11.051	10.116	9.307
29	25.066	21.844	19.188	16.984	15.141	13.591	12.278	11.158	10.198	9.370
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.427

CUMULATIVE PRESENT VALUE OF RS.1/-

(Continued)

Period \ Rate of Interest	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	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
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
21	8.075	7.562	7.102	6.687	6.312	5.973	5.665	5.384	5.127	4.891
22	8.176	7.645	7.170	6.743	6.359	6.011	5.696	5.410	5.149	4.909
23	8.266	7.718	7.230	6.792	6.399	6.044	5.723	5.432	5.167	4.925
24	8.348	7.784	7.283	6.835	6.434	6.073	5.746	5.451	5.182	4.937
25	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
26	8.488	7.896	7.372	6.906	6.491	6.118	5.783	5.480	5.206	4.956
27	8.548	7.943	7.409	6.935	6.514	6.136	5.798	5.492	5.215	4.964
28	8.602	7.984	7.441	6.961	6.534	6.152	5.810	5.502	5.223	4.970
29	8.650	8.022	7.470	6.983	6.551	6.166	5.820	5.510	5.229	4.975
30	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979