Professional Level – Options Module

Advanced Performance Management

Friday 7 December 2007

Time allowed
Reading and planning: 15 minutes
Writing: 3 hours

This paper is divided into two sections:

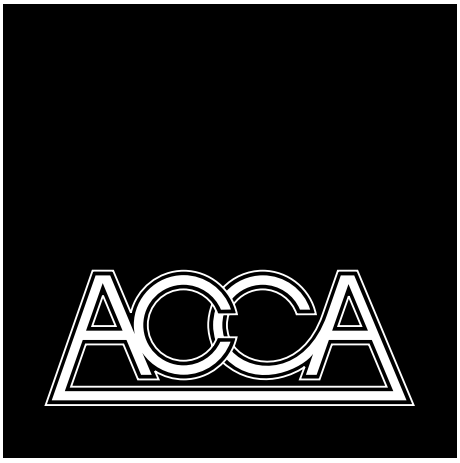
Section A – BOTH questions are compulsory and MUST be attempted

Section B – TWO questions ONLY to be attempted

Do NOT open this paper until instructed by the supervisor.
During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.
This question paper must not be removed from the examination hall.

The Association of Chartered Certified Accountants

Paper P5



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The question paper begins on page 3.

Section A – BOTH questions are compulsory and MUST be attempted

1 The Geeland Bus Company (GBC) is a partly government-funded organisation which provides transport services to the population of Geeland, a country which is divided into four regions i.e. Northern, Eastern, Southern and Western. The Western region differs from the Northern, Eastern and Southern regions in that it is a rural area with a low population.

The Terrific Transport Company (TTC) is a privately owned organisation which also provides transport services to the population of Geeland. All TTC buses are luxuriously fitted; each passenger has their own television and all buses have on-board catering facilities which serve a variety of drinks and snacks. The costs of these luxuries are included in fares charged by TTC.

Both GBC and TTC operate from premises in the Northern region. GBC operates a bus service to and from the Eastern, Southern and Western regions as well as a 'Hopper' service which takes passengers around all regions, other than the Western region, within Geeland. TTC also operates a bus service to and from the Eastern and Southern regions of Geeland as well as a Hopper service. TTC does not operate a service to and from the Western region.

The following information is available:

(1) A summary of the financial performance of GBC and TTC for the years ended 30 November 2006 and 2007 is as follows:

	GBC			TTC		
	2006	2007	2007	2006	2007	2007
Revenue:	Actual	Actual	Budget	Actual	Actual	Budget
	$	$	$	$	$	$
Eastern	***1,689,600**	1,536,000	1,843,200	1,566,720	2,088,960	1,958,400
Southern	2,457,600	***2,304,000**	1,843,200	1,566,720	***2,088,960**	1,958,400
Western	256,000	230,400	614,400	–	–	–
Hopper	1,267,200	1,152,000	1,382,400	1,175,040	1,566,720	***1,468,800**
Total revenue	5,670,400	5,222,400	5,683,200	4,308,480	5,744,640	5,385,600
Costs:						
Variable costs						
Eastern		***806,400**			544,000	
Southern		967,680			***652,800**	
Western		268,800				
Hopper		604,800			408,000	
Total variable costs	2,521,600	2,647,680	2,550,000	1,528,380	1,604,800	1,600,000
Salaries	1,225,000	1,275,000	1,250,000	1,240,000	1,250,000	1,250,000
Repairs and maintenance	100,000	160,000	120,000	40,000	40,000	42,000
Depreciation	70,000	70,000	70,000	250,000	250,000	250,000
Other operating costs	240,000	253,000	240,000	280,000	300,000	320,000
Loan interest	0	0	0	100,000	100,000	100,000
Total costs	4,156,600	4,405,680	4,230,000	3,438,380	3,544,800	3,562,000
Net profit	1,513,800	816,720	1,453,200	870,100	2,199,840	1,823,600

(2) The actual data categorised by route activity for the year ended 30 November 2007:

Route	Eastern		Southern		Western		Hopper	
Company	**GBC**	**TTC**	**GBC**	**TTC**	**GBC**	**TTC**	**GBC**	**TTC**
Number of buses operated per route	6	4	6	4	2	–	3	2
Number of journeys per bus per route, per day	2	2	2	2	1	–	1	1
Route length (km) per return journey	100	100	120	120	200	–	300	300
Capacity utilisation per bus (%)	60	80	75	80	30	–	60	80
Fare per passenger per journey ($)	10	12	10	12	20	–	30	36

(3) Each company operates for 365 days per year. Each GBC bus is in operation for 320 days of the year, whereas each TTC bus is in operation for 340 days of the year. The remaining days are taken up with planned maintenance work on the buses.

(4) Fares charged by GBC and TTC have not increased since 1 December 2005.

(5) GBC provides free transport for senior citizens on the Eastern, Western and Hopper routes. Free transport for senior citizens does not apply to the Southern route. Where applicable, capacity utilisation includes non fare-paying passengers. TTC does not provide any free transport.

(6) All buses operated by each company had a maximum capacity of 80 seats.

(7) Actual average variable costs of operating the bus service during the year ended 30 November 2007 amounted to $2·10 per km for GBC and $2·00 per km for TTC. The difference was solely attributable to the fact that GBC uses fuel which is more environmentally-friendly and, therefore, more costly than the fuel used by TTC.

(8) The written down values of non-current assets are as follows:

	2006	2007
Premises:	**$000**	**$000**
GBC	300	270
TTC	900	810
Vehicles:		
GBC	400	360
TTC	1,600	1,440

Note: There have been no additions or disposals of non-current assets since 1 December 2005 as per budget.

(9) The average number of fare-paying passengers per bus during the years ended 30 November 2006 and 30 November 2007 was as follows:

Number of fare-paying passengers per bus:	2006		2007	
	GBC	**TTC**	**GBC**	**TTC**
Route:				
Eastern	44	48	40	64
Southern	64	48	60	64
Western	20	–	18	–
Hopper	44	48	40	64

The same number of non fare-paying senior citizens travelled on GBC buses during the year ended 30 November 2006 as during the year ended 30 November 2007.

(10) Budgeted occupancy rates for all buses on all routes in operation, for the year ended 30 November 2007, were as follows:

Company	**Budgeted occupancy rate for fare-paying passengers (%)**
GBC	60
TTC	75

(11) Only the variable costs of operating the bus services (as per note 7) would be avoided if a route was to be discontinued since all other costs are fixed.

(12) At a meeting of the board of directors held during 2007, the managing director of GBC stated that: 'on no account shall we discontinue the operation of our Western route'.

Required:

(a) Prepare a report on the operating performance and financial performance of GBC and TTC for the years ended 30 November 2006 and 2007. As part of your report, you should include an appendix showing detailed workings of how each of the six figures marked with an asterisk (*) in note 1 has been calculated. (23 marks)

Note: 6 marks are available in respect of the six figures marked with an asterisk (*). 17 marks are available for other calculations and discussion, including 4 professional marks.

(b) Explain THREE problems in undertaking a performance comparison of GBC and TTC and also explain THREE items of additional information that would be of assistance in assessing the operating and financial performance of GBC and TTC. (6 marks)

(c) Critically discuss the statement (in note 12) of the managing director of GBC and suggest how the company could calculate the value of the service provision to the population of the Western region. (6 marks)

(35 marks)

2 Alpha Division, which is part of the Delta Group, is considering an investment opportunity to which the following estimated information relates:

(1) An initial investment of $45m in equipment at the beginning of year 1 will be depreciated on a straight-line basis over a three-year period with a nil residual value at the end of year 3.

(2) Net operating cash inflows in each of years 1 to 3 will be $12·5m, $18·5m and $27m respectively.

(3) The management accountant of Alpha Division has estimated that the NPV of the investment would be $1·937m using a cost of capital of 10%.

(4) A bonus scheme which is based on short-term performance evaluation is in operation in all divisions within the Delta Group.

Required:

(a) (i) Calculate the residual income of the proposed investment and comment briefly (using ONLY the above information) on the values obtained in reconciling the short-term and long-term decision views likely to be adopted by divisional management regarding the viability of the proposed investment. (6 marks)

(ii) A possible analysis of divisional profit measurement at Alpha Division might be as follows:

	$m
Sales revenue	xxx
Less: variable costs	xxx
1. Variable short run contribution margin	xxx
Less: controllable fixed costs	xxx
2. Controllable profit	xxx
Less: non-controllable avoidable costs	xxx
3. Divisional profit	xxx

Required:

Discuss the relevance of each of the divisional profit measures 1, 2 and 3 in the above analysis as an acceptable measure of divisional management performance and/or divisional economic performance at Alpha Division.

You should use appropriate items from the following list relating to Alpha Division in order to illustrate your discussion:

(i) Sales to customers external to the Delta Group
(ii) Inter-divisional transfers to other divisions within the Delta Group at adjusted market price
(iii) Labour costs or equipment rental costs that are fixed in the short term
(iv) Depreciation of non-current assets at Alpha Division
(v) Head office finance and legal staff costs for services provided to Alpha Division.

(8 marks)

(b) Summary financial information for the Gamma Group (which is not connected with the Delta Group) is as follows:

Income statements/financial information:

	2006 $m	2007 $m
Revenue	400	450
Profit before tax	96	117
Income tax expense	(29)	(35)
Profit for the period	67	82
Dividends	(23)	(27)
Retained earnings	44	55

Balance Sheets:

	2006 $m	2007 $m
Non-current assets	160	180
Current assets	180	215
	340	395
Financed by:		
Total equity	270	325
Long-term debt	70	70
	340	395

Other information is as follows:

(1) Capital employed at the end of 2005 amounted to $279m.

(2) The Gamma Group had non-capitalised leases valued at $16m in each of the years 2005 to 2007 which were not subject to amortisation.

(3) Amortisation of goodwill amounted to $5m per year in both 2006 and 2007. The amount of goodwill written off against reserves on acquisitions in years prior to 2006 amounted to $45m.

(4) The Group's pre-tax cost of debt was estimated to be 10%.

(5) The Group's cost of equity was estimated to be 16% in 2006 and 18% in 2007.

(6) The target capital structure is 50% equity, 50% debt.

(7) The rate of taxation is 30% in both 2006 and 2007.

(8) Economic depreciation amounted to $40m in 2006 and $45m in 2007. These amounts were equal to the depreciation used for tax purposes and depreciation charged in the income statements.

(9) Interest payable amounted to $6m per year in both 2006 and 2007.

(10) Other non-cash expenses amounted to $12m per year in both 2006 and 2007.

Required:

(i) Stating clearly any assumptions that you make, estimate the Economic Value Added (EVA™) of the Gamma Group for both 2006 and 2007 and comment briefly on the performance of the Group.
(8 marks)

(ii) Briefly discuss THREE disadvantages of using EVA™ in the measurement of financial performance.
(3 marks)

(25 marks)

Section B – TWO questions ONLY to be attempted

3 The directors of The Healthy Eating Group (HEG), a successful restaurant chain, which commenced trading in 1998, have decided to enter the sandwich market in Homeland, its country of operation. It has set up a separate operation under the name of Healthy Sandwiches Co (HSC). A management team for HSC has been recruited via a recruitment consultancy which specialises in food sector appointments. Homeland has very high unemployment and the vast majority of its workforce has no experience in a food manufacturing environment. HSC will commence trading on 1 January 2008.

The following information is available:

(1) HSC has agreed to make and supply sandwiches to agreed recipes for the Superior Food Group (SFG) which owns a chain of supermarkets in all towns and cities within Homeland. SFG insists that it selects the suppliers of the ingredients that are used in making the sandwiches it sells and therefore HSC would be unable to reduce the costs of the ingredients used in the sandwiches. HSC will be the sole supplier for SFG.

(2) The number of sandwiches sold per year in Homeland is 625 million. SFG has a market share of 4%.

(3) The average selling price of all sandwiches sold by SFG is $2·40. SFG wishes to make a mark-up of $33^1/_3$% on all sandwiches sold. 90% of all sandwiches sold by SFG are sold before 2 pm each day. The majority of the remaining 10% are sold after 8 pm. It is the intention that all sandwiches are sold on the day that they are delivered into SFG's supermarkets.

(4) The finance director of HSC has estimated that the average cost of ingredients per sandwich is $0·70. All sandwiches are made by hand.

(5) Packaging and labelling costs amount to $0·15 per sandwich.

(6) Fixed overheads have been estimated to amount to $5,401,000 per annum. Note that fixed overheads include all wages and salaries costs as all employees are subject to fixed term employment contracts.

(7) Distribution costs are expected to amount to 8% of HSC's revenue.

(8) The finance director of HSC has stated that he believes the target sales margin of 32% can be achieved, although he is concerned about the effect that an increase in the cost of all ingredients would have on the forecast profits (assuming that all other revenue/cost data remains unchanged).

(9) The existing management information system of HEG was purchased at the time that HEG commenced trading. The directors are now considering investing in an enterprise resource planning system (ERPS).

Required:

(a) Using only the above information, show how the finance director of HSC reached his conclusion regarding the expected sales margin and also state whether he was correct to be concerned about an increase in the price of ingredients. (5 marks)

(b) Explain FIVE critical success factors to the performance of HSC on which the directors must focus if HSC is to achieve success in its marketplace. (10 marks)

(c) Explain how the introduction of an ERPS could impact on the role of management accountants. (5 marks)

(20 marks)

4 GMB Co designs, produces and sells a number of products. Functions are recognised from design through to the distribution of products. Within each function, a number of activities may be distinguished and a principal driver identified for each activity.

Each sales order will normally comprise a number of batches of any one of a range of products. The company is active in promoting, where possible, a product focus for design, dedicated production lines and product marketing. It also recognises that a considerable level of expenditure will relate to supporting the overall business operation.

It is known that many costs may initially be recognised at the unit, batch, product sustaining (order) or business/facility sustaining (overall) levels. A list of expense items relating to Order Number 377 of product Zeta is shown below. The methods of calculating the values for Order Number 377 shown below are given in brackets alongside each expense item. These methods also indicate whether the expense items should be regarded as product unit, batch, product sustaining (order) or business/facility sustaining (overall) level costs. The expense items are not listed in any particular sequence. Each expense item should be adjusted to reflect its total cost for Order Number 377.

Order Number 377 comprises 5,000 units of product Zeta. The order will be provided in batches of 1,000 product units.

Order Number 377	
	$
Production scheduling (rate per hour x hours per batch)	60,000
Direct material cost (per unit material specification)	180
Selling – batch expediting (at rate per batch)	60,000
Engineering design & support (rate per hour x hours per order)	350,000
Direct labour cost (rate per hour x hours per unit)	150
Machine set-up (rate per set-up x number of set-ups per batch)	34,000
Production line maintenance (rate per hour x hours per order)	1,100,000
Business/facility sustaining cost (at 30% of all other costs)	1,500,000
Marketing (rate per visit to client x number of visits per order)	200,000
Distribution (tonne miles x rate per tonne mile per batch)	12,000
Power cost (rate per Kilowatt hour x Kilowatts per unit)	120
Design work (rate per hour x hours per batch)	30,000
Administration – invoicing and accounting (at rate per batch)	24,000

Required:

(a) Prepare a statement of total cost for Order Number 377, which analyses the expense items into sections for each of four levels, with sub-totals for each level where appropriate. The four levels are:

(i) Unit-based costs;
(ii) Batch-related costs;
(iii) Product sustaining (order level) costs; and
(iv) Business/facility sustaining (overall level) costs. (5 marks)

(b) Identify and discuss the appropriateness of the cost drivers of any TWO expense values in EACH of levels (i) to (iii) above and ONE value that relates to level (iv).

In addition, suggest a likely cause of the cost driver for any ONE value in EACH of levels (i) to (iii), and comment on possible benefits from the identification of the cause of each cost driver. (10 marks)

(c) Discuss the practical problems that may be encountered in the implementation of an activity-based system of product cost management. (5 marks)

(20 marks)

5 The directors of Blaina Packaging Co (BPC), a well-established manufacturer of cardboard boxes, are currently considering whether to enter the cardboard tube market. Cardboard tubes are purchased by customers whose products are wound around tubes of various sizes ranging from large tubes on which carpets are wound, to small tubes around which films and paper products are wound. The cardboard tubes are usually purchased in very large quantities by customers. On average, the cardboard tubes comprise between 1% and 2% of the total cost of the customers' finished product.

The directors have gathered the following information:

(1) The cardboard tubes are manufactured on machines which vary in size and speed. The lowest cost machine is priced at $30,000 and requires only one operative for its operation. A one-day training course is required in order that an unskilled person can then operate such a machine in an efficient and effective manner.

(2) The cardboard tubes are made from specially formulated paper which, at times during recent years, has been in short supply.

(3) At present, four major manufacturers of cardboard tubes have an aggregate market share of 80%. The current market leader has a 26% market share. The market shares of the other three major manufacturers, one of which is JOL Co, are equal in size. The product ranges offered by the four major manufacturers are similar in terms of size and quality. The market has grown by 2% per annum during recent years.

(4) A recent report on the activities of a foreign-based multinational company revealed that consideration was being given to expanding operations in their packaging division overseas. The division possesses large-scale automated machinery for the manufacture of cardboard tubes of any size.

(5) Another company, Plastic Tubes Co (PTC) produces a narrow, but increasing, range of plastic tubes which are capable of housing small products such as film and paper-based products. At present, these tubes are on average 30% more expensive than the equivalent sized cardboard tubes sold in the marketplace.

Required:

(a) Using Porter's five forces model, assess the attractiveness of the option to enter the market for cardboard tubes as a performance improvement strategy for BPC. (10 marks)

JOL Co was the market leader with a share of 30% three years ago. The managing director of JOL Co stated at a recent meeting of the board of directors that: 'our loss of market share during the last three years might lead to the end of JOL Co as an organisation and therefore we must address this issue immediately'.

Required:

(b) Discuss the statement of the managing director of JOL Co and discuss six performance indicators, other than decreasing market share, which might indicate that JOL Co might fail as a corporate entity. (10 marks)

(20 marks)

Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where r = discount rate
n = number of periods until payment

Discount rate (r)

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	1
2	0·980	0·961	0·943	0·925	0·907	0·890	0·873	0·857	0·842	0·826	2
3	0·971	0·942	0·915	0·889	0·864	0·840	0·816	0·794	0·772	0·751	3
4	0·961	0·924	0·888	0·855	0·823	0·792	0·763	0·735	0·708	0·683	4
5	0·951	0·906	0·863	0·822	0·784	0·747	0·713	0·681	0·650	0·621	5
6	0·942	0·888	0·837	0·790	0·746	0·705	0·666	0·630	0·596	0·564	6
7	0·933	0·871	0·813	0·760	0·711	0·665	0·623	0·583	0·547	0·513	7
8	0·923	0·853	0·789	0·731	0·677	0·627	0·582	0·540	0·502	0·467	8
9	0·914	0·837	0·766	0·703	0·645	0·592	0·544	0·500	0·460	0·424	9
10	0·905	0·820	0·744	0·676	0·614	0·558	0·508	0·463	0·422	0·386	10
11	0·896	0·804	0·722	0·650	0·585	0·527	0·475	0·429	0·388	0·350	11
12	0·887	0·788	0·701	0·625	0·557	0·497	0·444	0·397	0·356	0·319	12
13	0·879	0·773	0·681	0·601	0·530	0·469	0·415	0·368	0·326	0·290	13
14	0·870	0·758	0·661	0·577	0·505	0·442	0·388	0·340	0·299	0·263	14
15	0·861	0·743	0·642	0·555	0·481	0·417	0·362	0·315	0·275	0·239	15

(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	1
2	0·812	0·797	0·783	0·769	0·756	0·743	0·731	0·718	0·706	0·694	2
3	0·731	0·712	0·693	0·675	0·658	0·641	0·624	0·609	0·593	0·579	3
4	0·659	0·636	0·613	0·592	0·572	0·552	0·534	0·516	0·499	0·482	4
5	0·593	0·567	0·543	0·519	0·497	0·476	0·456	0·437	0·419	0·402	5
6	0·535	0·507	0·480	0·456	0·432	0·410	0·390	0·370	0·352	0·335	6
7	0·482	0·452	0·425	0·400	0·376	0·354	0·333	0·314	0·296	0·279	7
8	0·434	0·404	0·376	0·351	0·327	0·305	0·285	0·266	0·249	0·233	8
9	0·391	0·361	0·333	0·308	0·284	0·263	0·243	0·225	0·209	0·194	9
10	0·352	0·322	0·295	0·270	0·247	0·227	0·208	0·191	0·176	0·162	10
11	0·317	0·287	0·261	0·237	0·215	0·195	0·178	0·162	0·148	0·135	11
12	0·286	0·257	0·231	0·208	0·187	0·168	0·152	0·137	0·124	0·112	12
13	0·258	0·229	0·204	0·182	0·163	0·145	0·130	0·116	0·104	0·093	13
14	0·232	0·205	0·181	0·160	0·141	0·125	0·111	0·099	0·088	0·078	14
15	0·209	0·183	0·160	0·140	0·123	0·108	0·095	0·084	0·074	0·065	15

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

Discount rate (r)

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	1
2	1·970	1·942	1·913	1·886	1·859	1·833	1·808	1·783	1·759	1·736	2
3	2·941	2·884	2·829	2·775	2·723	2·673	2·624	2·577	2·531	2·487	3
4	3·902	3·808	3·717	3·630	3·546	3·465	3·387	3·312	3·240	3·170	4
5	4·853	4·713	4·580	4·452	4·329	4·212	4·100	3·993	3·890	3·791	5
6	5·795	5·601	5·417	5·242	5·076	4·917	4·767	4·623	4·486	4·355	6
7	6·728	6·472	6·230	6·002	5·786	5·582	5·389	5·206	5·033	4·868	7
8	7·652	7·325	7·020	6·733	6·463	6·210	5·971	5·747	5·535	5·335	8
9	8·566	8·162	7·786	7·435	7·108	6·802	6·515	6·247	5·995	5·759	9
10	9·471	8·983	8·530	8·111	7·722	7·360	7·024	6·710	6·418	6·145	10
11	10·37	9·787	9·253	8·760	8·306	7·887	7·499	7·139	6·805	6·495	11
12	11·26	10·58	9·954	9·385	8·863	8·384	7·943	7·536	7·161	6·814	12
13	12·13	11·35	10·63	9·986	9·394	8·853	8·358	7·904	7·487	7·103	13
14	13·00	12·11	11·30	10·56	9·899	9·295	8·745	8·244	7·786	7·367	14
15	13·87	12·85	11·94	11·12	10·38	9·712	9·108	8·559	8·061	7·606	15

(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	1
2	1·713	1·690	1·668	1·647	1·626	1·605	1·585	1·566	1·547	1·528	2
3	2·444	2·402	2·361	2·322	2·283	2·246	2·210	2·174	2·140	2·106	3
4	3·102	3·037	2·974	2·914	2·855	2·798	2·743	2·690	2·639	2·589	4
5	3·696	3·605	3·517	3·433	3·352	3·274	3·199	3·127	3·058	2·991	5
6	4·231	4·111	3·998	3·889	3·784	3·685	3·589	3·498	3·410	3·326	6
7	4·712	4·564	4·423	4·288	4·160	4·039	3·922	3·812	3·706	3·605	7
8	5·146	4·968	4·799	4·639	4·487	4·344	4·207	4·078	3·954	3·837	8
9	5·537	5·328	5·132	4·946	4·772	4·607	4·451	4·303	4·163	4·031	9
10	5·889	5·650	5·426	5·216	5·019	4·833	4·659	4·494	4·339	4·192	10
11	6·207	5·938	5·687	5·453	5·234	5·029	4·836	4·656	4·486	4·327	11
12	6·492	6·194	5·918	5·660	5·421	5·197	4·988	4·793	4·611	4·439	12
13	6·750	6·424	6·122	5·842	5·583	5·342	5·118	4·910	4·715	4·533	13
14	6·982	6·628	6·302	6·002	5·724	5·468	5·229	5·008	4·802	4·611	14
15	7·191	6·811	6·462	6·142	5·847	5·575	5·324	5·092	4·876	4·675	15

End of Question Paper