

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2015 examinations

Subject CT7 – Business Economics Core Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context at the date the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

F Layton
Chairman of the Board of Examiners

June 2015

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For Multiple Choice questions, it is not necessary to show workings or to offer explanation. For questions requiring calculations with workings, full marks would only be awarded if workings are shown. Similarly, in questions requiring explanation, full marks will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and correctly labelled and clear explanation offered.

Comments on the April 2015 paper

The paper was of a similar standard to the more recent years' papers and the pass rate was within the range experienced in recent years.

The standard of the performance in most questions in this diet was similar to the previous diets. The paper covered some of the topics/applications in the syllabus that were not recently examined. These topics presented more of a challenge to the candidates (for example questions 1 and 31).

Most candidates scored well in the multiple choice questions. On other questions, candidates were generally able to provide correct answers to parts of the questions where these involved offering standard theoretical concepts or numerical solutions and diagrams, or listing of the relevant factors. However, where marks were lost it was often due to lack of/insufficient discussion of the relevant factors; explanation being too general and not specific enough within the given context and repetition of the points already explained. In other questions, where a diagram was asked for, omission of the relevant diagram lost marks (for example question 37 part (c)).

Question 37 offered more scope for a discussion of the fiscal policy. Examiners were looking for a reasoned discussion of the role of the policy in controlling the cycles in the economy and the problems in implementing it, specifically in regards to the time lags. Such discursive questions, especially where these relate to policy, tend to probe candidates' deeper understanding of the relevant issues and the linkages between these. A good mark could be obtained where an appreciation of the key issues, the linkages and the impact through the economic system is demonstrated.

- | | |
|-----------|---|
| 1 | C |
| 2 | A |
| 3 | B |
| 4 | B |
| 5 | D |
| 6 | D |
| 7 | C |
| 8 | A |
| 9 | C |
| 10 | D |
| 11 | D |
| 12 | C |
| 13 | B |
| 14 | B |
| 15 | D |
| 16 | B |
| 17 | A |
| 18 | B |
| 19 | C |
| 20 | C |
| 21 | A |
| 22 | B |
| 23 | C |
| 24 | A |
| 25 | A |
| 26 | C |

The answers to these questions were generally good. Candidates found the first two questions rather more challenging than others.

27 Factors affecting the demand for shares:

The dividend yield, the price and/or return on substitutes, incomes, wealth, expectations.

The dividend yield: Investors look for a high return when buying shares. This is the dividend they receive on a share in relation to its price. The higher the dividend yield on shares, the more attractive the shares would be as a form of saving.

The price and/or return on substitutes: the main substitutes for shares in a company are the shares in other companies. Investors will substitute shares with higher dividend yield for those with a lower dividend yield. The main substitute for shares in general are other forms of saving such as saving accounts in banks and building societies as well as property and bonds. If the interest rates received on saving accounts fall,

savers could be tempted to take their money out of these accounts and buy shares instead. Similarly, if house prices rise rapidly, savers may switch from holding shares to buying property in anticipation of even higher prices in the property market.

Incomes: When the economy is growing and incomes are rising, there is likely to be more demand for shares leading to a rise in share prices. When the economy slows down and incomes fall, the demand for shares and share prices may fall.

Wealth: Individuals use their increased wealth to buy more shares.

Expectations: If investors are optimistic about the economy and expect the share prices to rise, they will buy more shares which will raise share prices, leading to an expectation of even higher prices and more demand for shares. Conversely, lack of confidence in the economy in the future would lead to an expectation of a fall in share prices and lower demand for shares.

(Other reasonable factors such as capital appreciation were accepted. However the factors needed to be distinct.)

The answers to this question were generally satisfactory. Although most candidates listed the factors correctly, many did not provide sufficient explanation.

28 Factors that shift the demand for sports cars:

Incomes: As people's incomes rise, their demand for most goods including sports cars will increase. Higher incomes will shift to the right the demand for these cars.

Tastes: If individuals have a preference for sports cars, they will tend to buy the car. Advertising, fashion, other people's choice and safety considerations in favour of this type of car, could affect a consumer's decision and shift the market demand for these cars to the right.

The price of complementary goods such as petrol: If the price of petrol falls, with cheaper petrol, people would be more inclined to buy these types of car since these tend to be less energy efficient and the demand will shift right.

(Alternatively other factors such as a reduction in the price of sports cars relative to other types of cars, expectation of future increases in the price of sports cars and a reduction in car tax were accepted.)

This question was generally answered well.

29 Some of the factors affecting the supply of oil:

Cost of production: The cost of extraction and refining oil, improvements in technology, labour costs and government taxes.

Profitability of goods in joint supply: Oil derivative products such as petrol, gasoline and paraffin.

Profitability of supply substitutes: Other sources of energy such as coal. Nature, unpredictable events: Earthquakes and fires in oil fields, wars.

The aims of the producers of oil: Oil producing countries forming a cartel and restricting supply in order to increase the price and profits.

This question was generally answered well.

30 (i) The growth in sales of the new trainers is likely to be slow initially. As the fashion “catches on” sales grow until a peak is reached. As the market becomes saturated, the sales will fall.

Costs and prices tend to vary with the stage of a fashion cycle. When the new trainers are first introduced, the fixed costs of design, setting up production lines etc. are being spread over a relatively small output so the average fixed costs are high. The demand from those who want to wear the latest design is relatively price inelastic. The price, therefore, is likely to be high at the introductory stage.

When the fashion catches on average costs will begin to fall. Other manufacturers will also produce similar designs at a cheaper price. This results in a fall in price. As cheaper trainers are now available, the demand becomes more elastic.

As the sales peak, costs are not likely to fall much further but as competition increases among sportswear manufacturers to market similar design trainers, prices continue to fall. At this stage the demand becomes highly elastic. Later the introduction of new designs will lead to a rapid decline in sales.

(ii) It is unlikely that internet shopping will completely replace store shopping since there are benefits in shopping in shops that shopping online cannot offer. People like to see, touch and try the product before they commit to buying. They could take possession of the good instantly without having to wait/ arrange for delivery. Many also enjoy the experience of shopping and treat it as a leisure activity that involves browsing, meeting friends etc. They would be prepared to pay a premium for these benefits.

Although availability of broadband has improved quality of Internet access there are still limitations to online shopping. The delivery infrastructure may not be able to cope with the high demand periods. Goods may not be delivered on time. Online shopping requires access to a credit or debit card which might

not be available to everyone. Also costs might not always be as low as expected. A large number of small deliveries could erode some of the cost savings gained from economies of scale achieved by larger producers.

The second part of this question was answered rather better than the first part. There were good general descriptions of the product life cycle but more focus on costs, price and elasticity was required.

- 31** A firm may finance growth by using internal funds, by borrowing or by issuing new shares. All three methods are likely to lead to a reduction in the firm's share dividend in the short run. If a firm retains too much profit to use for financing growth, too small an amount of funds will be available to distribute as dividend. Borrowing too much to finance growth means that higher interest payments will make it difficult to maintain the level of dividends. Raising finance by a new share issue means that the distributed profits will have to be divided by a larger number of shares.

In all cases, therefore, the more the firm invests, the more the likely fall in dividends in the short run. If shareholders are confident that in the long run profits and hence dividends will rise again, the share price will remain high, otherwise they may sell their shares causing a fall in the share price. If the share price falls too far, there is the risk of takeover. Firms maximising growth are subject to takeover constraint which requires the firm to distribute sufficient profits to avoid being taken over. The rate of business growth, therefore, is influenced not only by market opportunities but also by shareholder demands and expectations and fear of takeover.

Conversely, if firms pay high share dividends and as a result fail to invest and grow fast enough, it could be seen by a potential buyer as a valuable acquisition with resources that could be put to good use over the longer term.

The likelihood of takeover largely depends on the stock market's views of how the firm's investment strategy would affect its future performance and profitability. These views are reflected in the valuation ratio of the firm; the ratio of the stock market value of the firm's shares to the book value of the firm's assets. A low ratio indicates that the assets of the firm are undervalued and the business will be more attractive to potential bidders. In the longer run even a rapidly growing firm with growing profits that are used to finance further growth needs to be aware of takeover constraint since profits cannot be an unlimited source of finance.

The answers to this question were rather disappointing, with candidates providing partial answers to the question if at all.

32 (i)

Quantity	Total Cost	Average cost	Marginal cost	Total revenue	Profit
0	10	–	10	0	–10
1	20	20	6	14	–6
2	26	13		28	2
			4		
3	30	10		42	12
			8		
4	38	9.5		56	18
			12		
5	50	10		70	20
			22		
6	72	12		84	12
			33		
7	105	15		98	–7

- (ii) Marginal and average costs are equal at the minimum level of the average cost at 9.5 and quantity of 4 units.
- (iii) Maximum profit achieved is 20 at production level of 5 units.
- (iv) The economies of scale are only possible when firms are able to expand and become large. This is not possible since in perfect competition other firms enter the market and supernormal profits that support growth cannot be made in the long run.

This question was generally answered well.

33 (i) $C = 0.6Y$ $G = 80$, $I = 20$

$$\begin{aligned}
 AD &= C + G + I \\
 &= 0.6Y + 80 + 20 \\
 &= 0.6Y + 100
 \end{aligned}$$

In equilibrium $AD = Y$

$$0.6Y + 100 = Y \rightarrow Y = \text{€}250\text{b}$$

- (ii) Budget deficit = $G - T = 17.5$ Tax revenue = $80 - 17.5 = \text{€}62.5\text{b}$
 Tax rate = $62.5/250 = 0.25$ consumption = $0.6(250) = \text{€}150\text{b}$
 Savings = disposable income – consumption
 $= 0.75(250) - 150 = 187.5 - 150 = \text{€}37.5\text{b}$
- (iii) $i = I/Y = 20/250 = 0.08$

- (iv) $\Delta Y/I = €0.25 \rightarrow$ marginal capital/output ratio $k = I/\Delta Y = 4$ Rate of growth $= i / k$
 $= 0.08/4 = 0.02$ or 2% growth rate
New level of income $= 250(1.02) = \text{€}255$

This answers to this question were generally satisfactory, although part (iv) seemed to cause difficulty for some candidates.

- 34** (i) A horizontal strategic alliance is a formal or informal arrangement between two or more firms to cooperate on a particular activity at the same stage of production. This may involve the establishment of a joint venture or a franchise agreement or a looser contractual arrangement. For example, Company ABC and Company XYZ agreeing to build a LCD television screen in Korea is an example of a joint venture. Alternatively a UK company might agree to produce and distribute a well know foreign beer in the UK under a franchise agreement. Under a contractual arrangement two or more companies might agree to share research and development costs for producing a new electric car.

- (ii) There are many reasons as to why firms might decide to set up a strategic alliance.

New markets – as a business engages in, say, international expansion it may well be advantageous to join in with an existing domestic firm in the market. This is because the existing firm will have local knowledge and an established network of suppliers and distributors.

Risk sharing – it might be too risky for a single firm to produce a new product or enter a new market by itself. As such it may help to reduce the risk if another firm is involved in the costs of producing the new product or entering a new market.

Capital pooling – projects that have very high start up costs and/or running costs may be too expensive for a single firm to finance. By pooling the capital of two or more firms the resources to finance a project may suddenly make the project feasible. For example, a consortium of companies was required to finance Airbus and also the Channel tunnel.

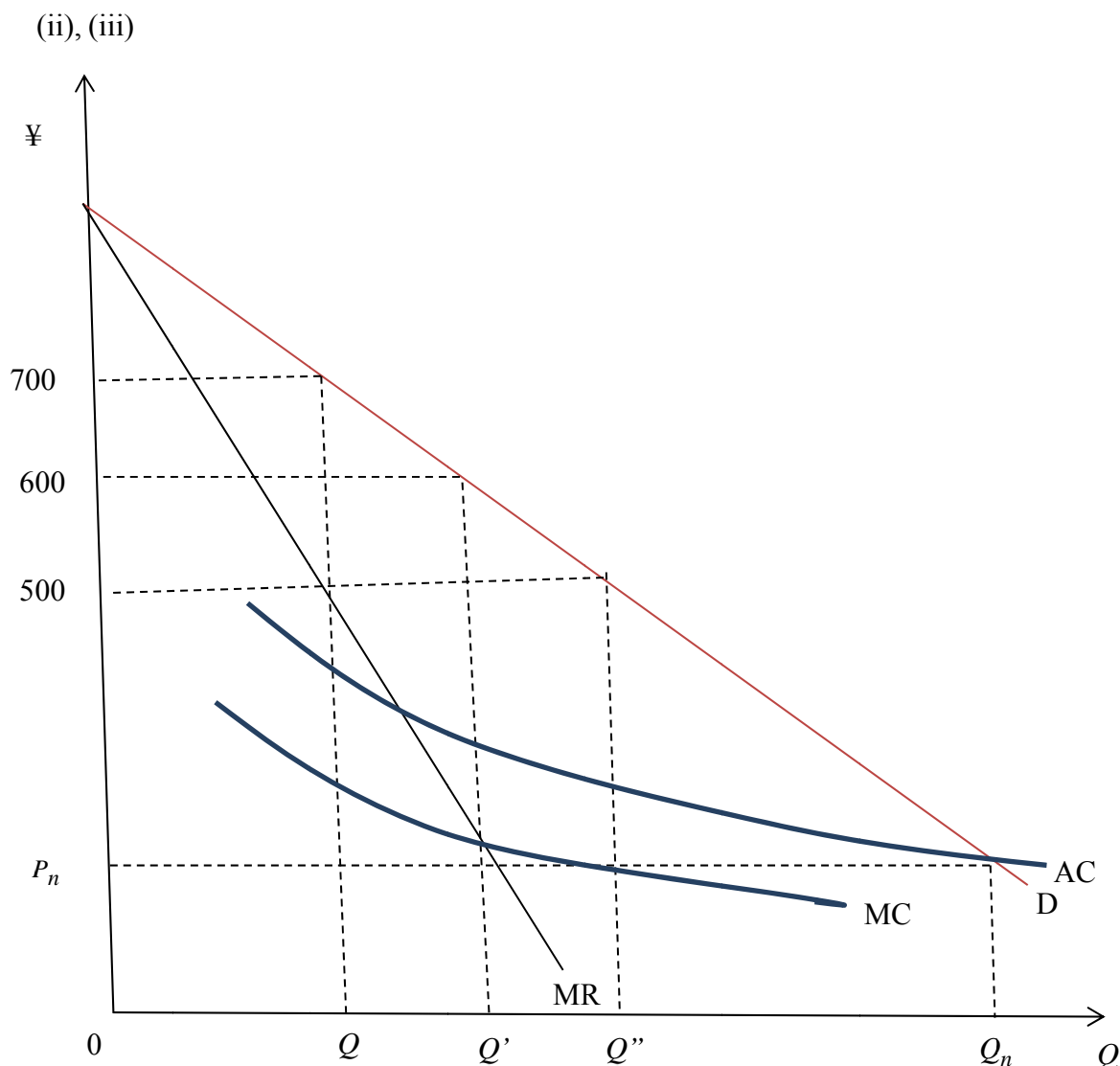
Knowledge pooling – a strategic alliance may make sense when firms have access to different technologies and expertise. Sometime a project would make no sense for a single firm as it may not have the necessary expertise whereas a consortium of firms with different expertise in different areas may make production of a new good possible.

Performance on this question was mixed. There were better answers to the second part of the question.

- 35**
- (a) Balance of trade = $-80,600 + 50,500 = -30,100$
 - (b) Current account balance = $-30,100 + 20,300 - 25,000 = -34,800$
 - (c) Financial account balance = $-40,500 + 63,000 - 5,000 = +17,500$ Total
= $-34,800 + 5,000 + 17,500 = -12,300$
 - (d) Net errors and omissions = $+12,300$

Most candidates answered this question well.

- 36**
- (i) Toshisoni is exercising second degree price discrimination. The firm offers a lower price for higher quantities purchased to provide an incentive for consumers to buy more. It will engage in this strategy if its average costs fall with higher levels of production achieved in this way so this strategy is useful if firms face a downward sloping average cost curve. By encouraging customers to buy more, Toshisoni exploits the economies of scale and gains more revenue. The firm could benefit from the economies of scale such as spreading of overheads, financial economies, managerial economies which reduce its average costs.



- (iv) The firm has two separate markets in Japan and the UK, faces demand curves with different slopes in each market, and charges different prices in each. The firm exercises third degree price discrimination.

This question was generally answered well. Some answers to part (i) required more detail and some graphs had a rather untidy/unclear presentation.

- 37** (a) Governments employ discretionary fiscal policy by altering the level of government expenditure or the rate of taxation. The policy is used to counteract substantial fluctuations in the economy, fine tuning demand or when the economy experiences persistent disequilibrium. For example an increase in government expenditure is used to boost aggregate demand and reduce unemployment during recessions.

An increase in government expenditure on goods and services will lead to a full multiplier effect on increasing national income as the full amount of government spending will find its way to the circular flow of income and

increase the aggregate demand. A cut in tax rate or an increase in benefits would lead to an increase in households' disposable income. Some of this extra income will be spent on domestic goods and will find its way into the circular flow of income. But some will be paid on other forms of tax, saved or spent on imports. A tax cut, therefore, will have a smaller multiplier effect and will have a smaller impact on aggregate demand.

- (b) The success of fiscal policy in fine tuning demand and achieving the desired level of GDP is dependent on whether the governments are able to predict the effect of a change in government expenditure or taxation on national income, employment and inflation. The reasons why the final impact of the policy is difficult to predict reliably relate to predicting the size of the impact and the timing of the impact accurately.

Problems of magnitude

First, a rise in government expenditure may replace some private spending and hence the effect will be partially offset by such a reduction. For example, an increase in expenditure on health services may lead to fewer people paying for private health care.

Second is the problem of government crowding out the private sector. Governments could finance their spending by increasing the money supply or by borrowing from the non-bank private sector. If the government borrows the money it will have to offer a higher rate of interest than the private sector with which it is in competition for funds. The firms and households also suffer a higher rate of interest on their borrowing and will be discouraged from investing and buying on credit. In extreme cases the rise in government expenditure financed by borrowing may be completely offset by a fall in private investment and consumption rendering the policy ineffective.

Third, it is difficult to predict how households adjust their spending and savings as a result of a tax cut and the consequent increase in their disposable income. If they expect the tax cut to be permanent, they may increase their consumption but if they think the tax cut is temporary, they may save the extra income.

Fourth, even if the government could predict the initial effect of government expenditure on injections and withdrawals, the final impact on the aggregate demand is hard to predict.

One reason for this difficulty is that the size of the multiplier is difficult to gauge since it is difficult to predict how much of any rise in income will be withdrawn. Household consumption and saving patterns depend on their expectations about factors such as prices, incomes and exchange rates, all of which could be subject to substantial fluctuations.

A second reason is that the accelerator effect is also difficult to predict. Fiscal policy could be a "pump-primer" when a relatively small fiscal stimulus starts

the process of recovery, restores business confidence leading to a substantial rise in induced investment and continuation of the process by the market. The success of “pump priming” depends on whether businesses believe in the policy working. However business confidence could change rapidly in a short period of time.

Fifth, forecasts cannot take into account events that exert a random shock to the economy. Unpredictable events such as the attack on the World Trade Centre in New York and the banking crisis of 2007–09 may seriously undermine government policy.

(c) **Problems of timing**

Fiscal policy may involve considerable time lags. Each stage of the policy, from recognising the nature of the problem and planning and implementing government expenditure and tax, to fiscal stimulus working through the economy via multiplier and accelerator all take some time to complete. Fiscal policy could have a destabilising effect if the time lags are long enough.

Expansionary policies to combat a recession could come into effect too late when the economy has already recovered and is experiencing a boom. In these circumstances, the policy has the effect of overheating the economy.

Similarly deflationary policies aimed at preventing excessive expansion may not take effect until the economy is already heading for recession. The policy will deepen the recession in this case.

Real national income

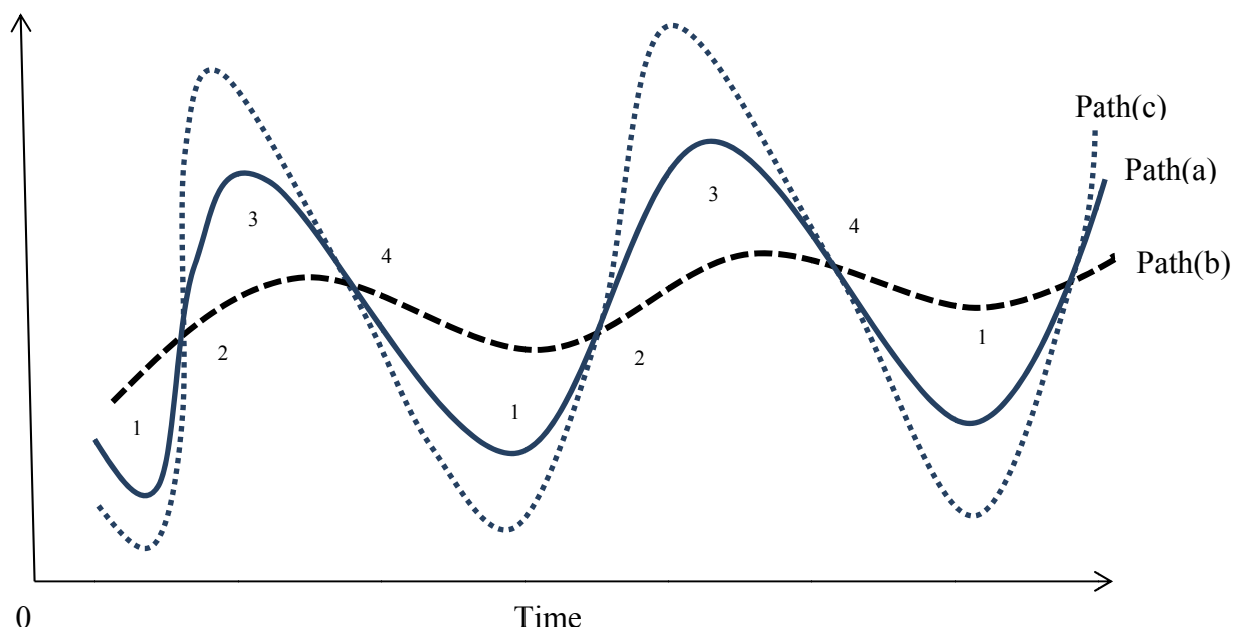


Figure above shows the course of the business cycle without government intervention in Path (a). To smooth the cycle, with no time lags the economy should be dampened in stage 2 and stimulated in stage 4. With timely

implementation of the policy, the resulting path would be path (b). If the policy succeeded in stabilising the cycle perfectly, the course of the business cycle would be a line showing the growth of potential output.

However, if there are time lags, deflationary policies taken in stage 2 will not have an impact until stage 4 and policies to revive the economy in stage 4 will not come into effect until stage 2 resulting in the Path (c) and the policies aimed at making the economy more stable will destabilise the economy.

Provided that the fluctuations in demand can be forecast and the length of the time lags are estimated correctly, fiscal measures can be timed so that their delayed impact occurs as planned.

Performance on this question was generally satisfactory. Some candidates lost marks due to insufficient explanation. The answer above provides a guide to the main points and issues a good answer needed to address.

END OF EXAMINERS' REPORT