# INSTITUTE AND FACULTY OF ACTUARIES

# EXAMINERS' REPORT

September 2012 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.

D C Bowie
Chairman of the Board of Examiners

December 2012

**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 questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark 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 labelled and clear explanation offered.

**Comments on the September 2012 paper**

The paper was of a similar standard to the last two years' papers which test the new syllabus. The new syllabus, first introduced in 2010, includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors.

Some questions such as question 32 and question 35 required an answer that explained two aspects of the issue. In both questions many candidates did not include an adequate explanation of the supply side which was necessary to obtain full marks for these questions.

Similarly in question 37 where a full explanation of advantages and disadvantages of the two types of exchange rate mechanism is asked for, a listing of the relevant factors will not be sufficient to obtain the full allocated marks.

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

*The multiple choice section was generally well answered although questions 3, 12, 13 and 26 had the lowest success rates.*

**27** (i)

| *Output* | *Average total cost* | *Marginal cost* |
|---|---|---|
| 0 | - | - |
| 1 | 60 | 10 |
| 2 | 39 | 18 |
| 3 | 35 | 27 |
| 4 | 35 | 35 |
| 5 | 37 | 45 |
| 6 | 44 | 79 |

(ii) At 5 units of output

(iii) 65

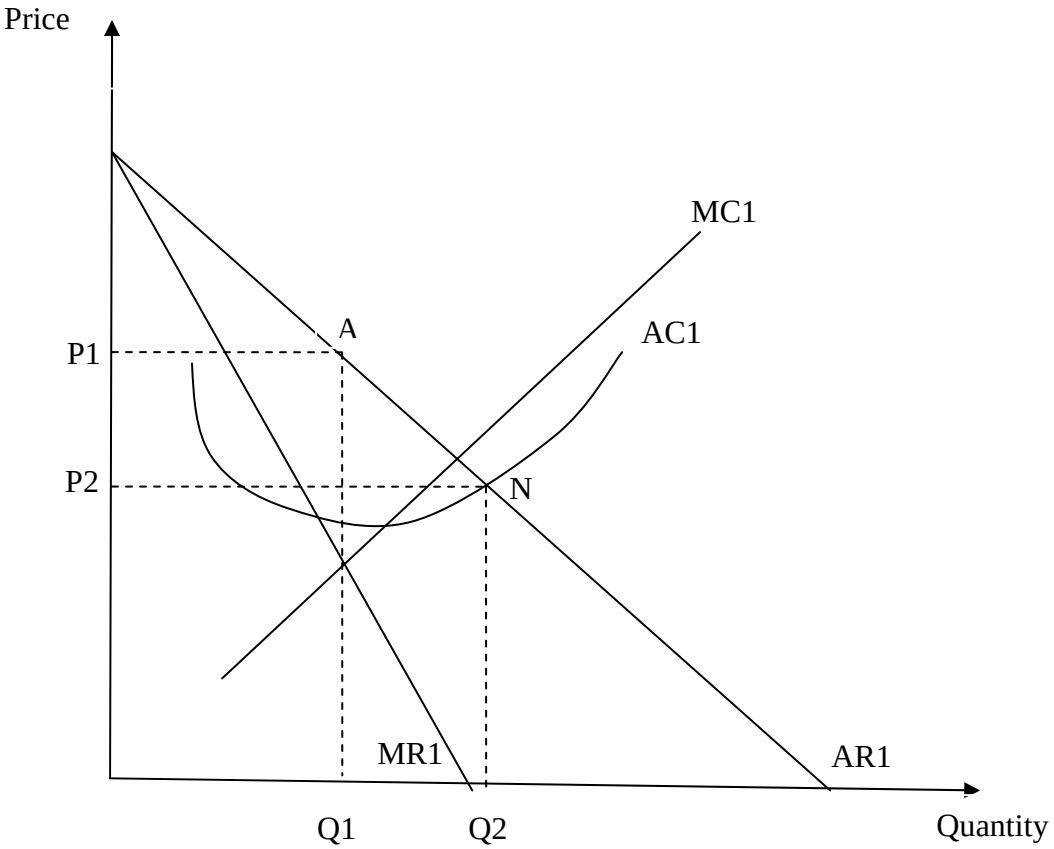
*Generally well answered with many candidates obtaining full marks.*

**28** In the short run the law of diminishing returns is the relevant factor in determining short run average costs. As increasing amounts of a variable factor of production are added to a given amount of a fixed factor, marginal and average product initially tend to rise implying a fall in short run average costs. However, after a certain point marginal and eventually average product begin to decline. As average product declines then short run average costs rise.

Long run average costs are affected by economies and diseconomies of scale. In the long run all factors of production are variable. If increasing all inputs increases output more than proportionately then long run average costs decline. Examples of economies of scale include: discounts for bulk purchasing, lower borrowing costs etc. Eventually diseconomies of scale may set in eg bureaucracy, inflexibility etc. When diseconomies of scale outweigh economies of scale then long run average cost will begin to rise.

*This question had mixed responses with many students failing to distinguish between the law of diminishing returns as the key determinant of short run costs and economies and diseconomies of scale as longer run determinants.*

**29**




*Generally well answered but many students failed to locate the appropriate break even output.*

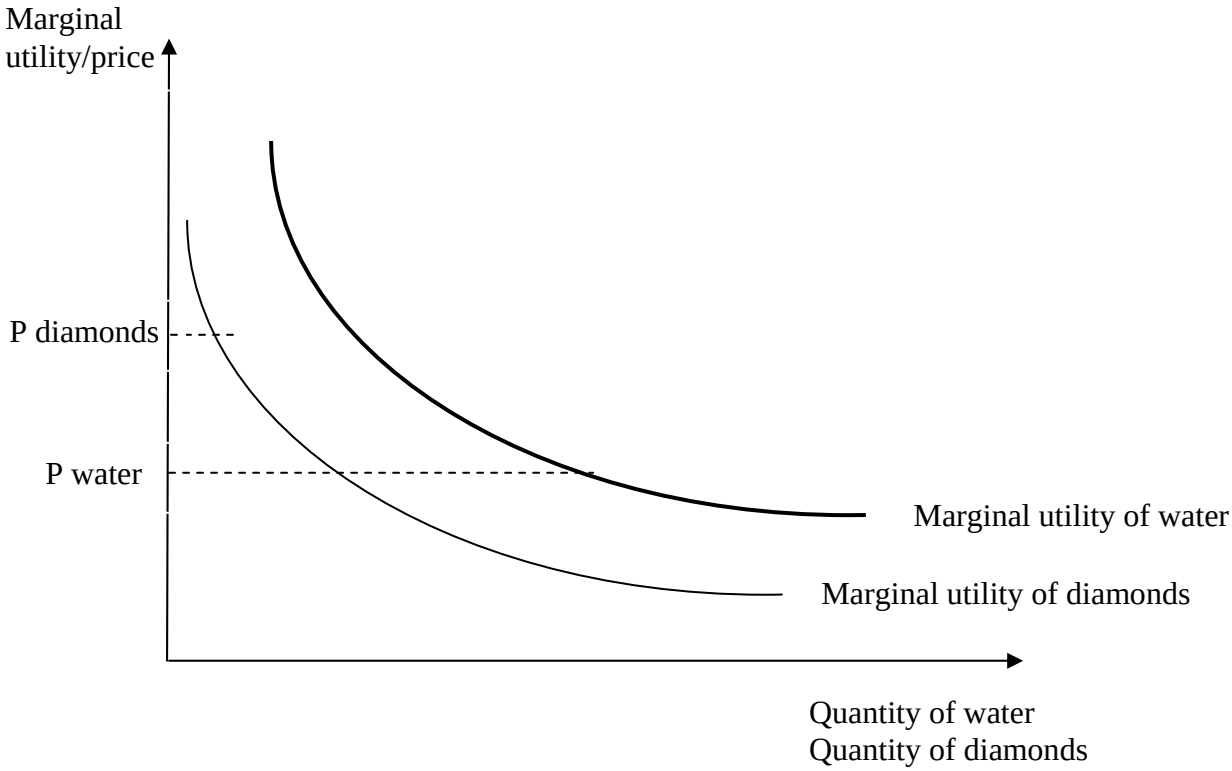
**30** Essential products such as water have relatively low prices, but some luxuries such as diamonds have high prices. The paradox results from confusion between total and marginal utilities.

The relationship between total market value and total utility varies depending on the product. Total market value may be a very high or very low fraction of total utility. In equilibrium the value consumers place on the last unit consumed of any product (its marginal utility) is equal to the product's price.

Plentiful good (water) has a low price. It is consumed to the point where all purchasers place a low value (or marginal utility) on the last unit consumed and hence it results in a relatively low price. This is despite the fact that they place a high value on their total consumption of the product.

Scarce good such as diamonds have a high price. Consumption stops at a point where consumers place a high marginal value on the last unit consumed whatever value they place on their total consumption of the good. The result is that the marginal utility of diamonds results in a higher price for diamonds whatever the value of total utility.

The market price of a product depends on a mixture of demand and supply. Hence, there is no paradox is involved when a product from which consumers receive a high total utility sells for a low price, and hence has only a low total market value.




*Answers to this question were varied and while examiners allowed for supply and demand type answers that emphasised the relative abundance of water. Good answers tended to focus on the importance of marginal utilities and the fact that diamonds have a higher marginal utility and hence in equilibrium diamonds have a higher price.*

**31** (i) The equilibrium price is obtained from the equilibrium condition $Q_d = Q_s$

$120 - 2P = 2P$

Hence $4P = 120$

$P = 30$

Equilibrium quantity = $2 \times 30 = 60$ units

(ii) The sales tax ($t$) affects the supply curve:

$Qs = 2P^*$

Where $P^* = P - t = P - 10$

The price received by the producer after the sales tax is paid is P* which is

P – 10:

Qs = 2P* = 2(P – 10) = 2P – 20

We need Qd = Qs

120 – 2P = 2P – 20

4P = 140

Hence the new equilibrium price is £35

The new equilibrium quantity is 120 – 2 × 35 = 50 units

(iii) The tax revenue raised = units sold × tax per unit = 50 × £10 = £500.

*This question was generally well answered with many candidates obtaining full marks.*

**32** Devaluation – this makes imports more expensive in domestic currency terms and exports cheaper in foreign currency terms. This should lead to a fall in import volumes and a rise in export volumes.

Fiscal restraint – a cut in fiscal expenditure (rise in taxes) will have reverse multiplier effects on national income resulting in reduced import expenditure via the marginal propensity to import.

Monetary restraint – as tight monetary policy will via higher interest rates restrain consumer expenditure and investment. This will reduce national income and import expenditure.

Productivity improvements – increased productivity will improve the competitiveness of exports and the ability of import competing industries to compete against imports.

Subsidies – the government could subsidise exports of import competing industries.

Government procurement policies could change such that government expenditure is switched away from imported goods to domestically produced goods so improving the trade balance.

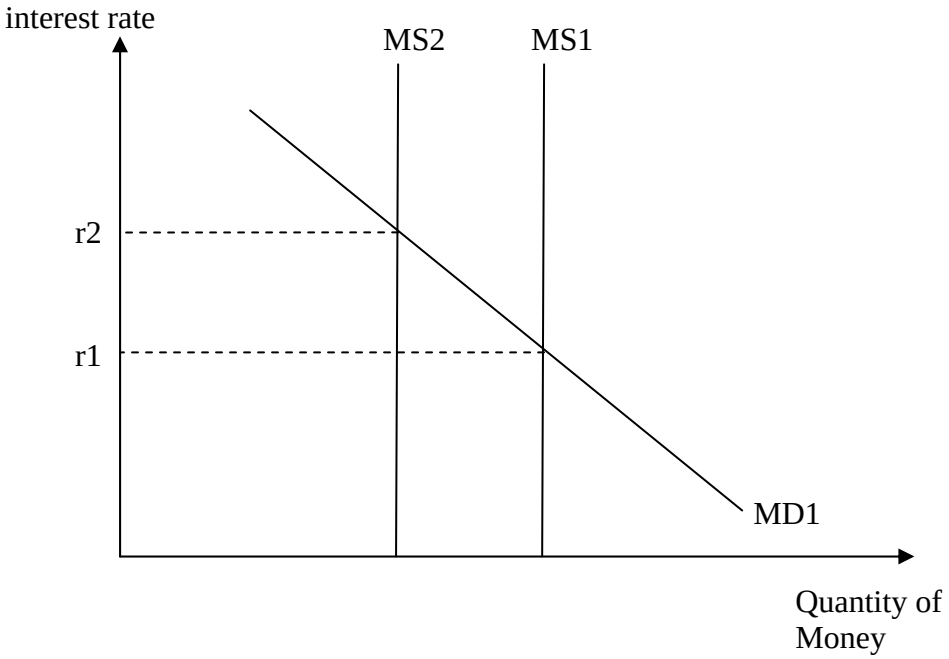
A government could introduce exchange controls that restrict its citizens ability to purchase foreign exchange and hence imports. If this is the case then they may switch expenditure from imports to domestically produced goods.

*There were some very good answers to this question but overall not enough students emphasised the supply side factors that can contribute to an improved balance of payments performance.*

**33** (i) 5
(ii) 15
(iii) 75 (or 3 due to ambiguity in the meaning of bank multiplier)

*Parts (i), (ii) and (iii) were well answered. Due to some ambiguity in the phrasing the question for part (iv) of the question examiners allowed for two possible answers as above.*

**34**




The original money supply and demand are given by MS1 and MD1 respectively giving equilibrium at interest rate r1. A reduction in the real money supply from MS1 to MS2 due to Treasury bill sales causes a disequilibrium in asset holders' portfolios, such that there is an excess of Treasury bills and shortage of money at the prevailing interest rate r1. The result will be that Treasury bill prices fall and the interest rate will rise. Equilibrium is restored at interest rate r2 where the higher interest rate eliminates the excess supply of bills and the shortage of money.

*There were some very good answers to this question with well drawn diagrams.*

**35** (i) Economic growth is an increase in the real output of an economy.

(ii) Investment – this is current output that is not consumed. An increase in investment will result in higher production in the future.

Education and training – this improves the productivity of the labour force and thereby raises the economic growth rate.

Technological change – this increases the productive potential of an economy.

Improved management skills – this will lead to improved efficiency, better economic organisation and greater output.

There are various aggregate demand measures that can assist economic growth such as increased government expenditure and reductions in taxation which boosts the incentive for firms to raise investment and worker to take up employment.

Another way to boost economic growth are structural reforms such as privatization, reductions in market distortions such as breaking up monopolies and making it easier and less bureaucratic for firms to take on workers and offer new products and series and new firms to set up business.

Population growth – this increases the productive potential of an economy and provides a steady increase in demand that will improve the investment climate.

Further ways of increasing economic growth over time are increased participation rate in the labour force or increasing working hours to get more hours work per worker. Similarly improving health standards means you will get more hours of work per worker so raising economic growth.

*In the definition of economic growth it was essential to emphasise the increase in real output; many candidates made reference to nominal output or output without clearly specifying real output. In part (ii) there was a need to emphasise supply side factors such as increased participation rates and population growth rates as drivers of economic growth.*

**36**

(i) £100 million
(ii) A rise in unplanned stocks of £12 million
(iii) £22 million
(iv) £6 million
(v) £20 million

*This question was generally well answered.*

**37** **Advantages of floating exchange rates**

Monetary policy can be conducted independently of other countries without the need for controls on the movement of capital. This means governments are able to pursue independent fiscal and monetary policies suited to the needs of the domestic economy.

A floating exchange rate will tend to move to offset a balance of payments deficit or surplus automatically. A large deficit in the balance of payments will lead to a depreciation of the exchange rate which over time will boost exports (by making them cheaper for foreigners to buy) and reduce imports (by making them more expensive for domestic residents to purchase) and thus bring down or eliminate an unsustainable deficit.

A floating exchange rate can also insulate the domestic economy from the effects of foreign price shocks and other economic shocks. For example if foreign inflation rises, this may lead to an appreciation of the domestic currency so insulating the domestic economy from the foreign price shock.

There is no need for the central bank to hold large amounts of gold and foreign currencies, as the government need not intervene in foreign exchange markets.

**Disadvantages of floating exchange rates**

The major disadvantage of floating exchange rates is that they introduce uncertainty into foreign trade transactions. However, traders can alternatively use financial markets to carry out forward exchange deals to protect themselves against unexpected movements.

Foreign exchange markets when left to float can also lead to overvalued and undervalued currencies that can cause trade frictions between economies. Countries of currencies that become substantially overvalued will complain about unfair trade advantages that are conferred on countries with undervalued currencies.

Exchange rate under floating might be subject to excessive volatility caused by irrational speculation or by the tendency to overshoot their long run equilibrium values in the short run. This may adversely affect global trade volumes.

Although floating exchange rates give policy makers a high degree of monetary autonomy, there are some governments who use this autonomy to pursue excessively inflationary policies with adverse outcomes for the economy over the medium to long run.

**Advantages of fixed exchange rates**

Fixed exchange rates give greater certainty, and hence encourage foreign trade, allowing the potential gains from trade to be realised.

Fixed exchange rates can lead to lower inflation when the domestic currency is fixed relative to a low inflation currency. By pegging to a low inflation currency a country can send a signal to economic agents that they need to keep their wage demands and prices under control otherwise the country will lose some of its competitiveness and jobs.

Fixed exchange rate can also force discipline on governments since the fear of devaluation may prevents governments pursuing irresponsible macroeconomic policies, e.g. if a government deliberately expands aggregate demand to increase popularity with voters, a balance of payments deficit will arise and so it may have to constrain aggregate demand to prevent an excessive balance of payments deficit.

Fixed exchange rates can promote international policy coordination. Frequently fixed exchange rate systems are maintained by two or more countries that cooperate to maintain a fixed exchange rate system. This may lead to a superior economic outcome

than a floating exchange rate where countries may be more inclined to pursue economic policies that are in their national interest rather than in the joint interest.

**Disadvantages of fixed exchange rates**

A major problem with a fixed exchange rate is that the authorities will lose their monetary autonomy if their currency is under pressure to devalue then they have to raise interest rates to protect the domestic currency even if this is not desirable for the domestic economy. For example, if there are already high levels of unemployment and/or slow economic growth. Similarly if there is pressure for the currency to appreciate then they will be forced to lower the domestic interest rate even if there are inflationary pressures in the domestic economy

If there is a balance of payments deficit, the level of domestic aggregate demand must be reduced, which can have serious effects in terms of higher unemployment and lost output.

Fixed exchange rates may prove inappropriate compared to floating exchange rates when an economic shock hits the economy because the exchange rate is not free to adjust to the shock. Instead the economic shock may require unnecessarily large adjustments in the real economy. For example as sudden rise in oil may require the oil importing government to pursues deflationary policies to prevent a large current account deficit under fixed exchange rates resulting in a large increase in unemployment. Whereas with a floating exchange rate the oil price shock effect on the current account may e offset by a depreciation of the currency which boosts exports. Usually a balance of payments deficit can be corrected by a depreciation of the value of the domestic currency, which is not an option with fixed exchange rates. Under fixed exchange rates the government may be forced to impose fiscal austerity in a bid to restore international competitiveness and reduce balance of payments deficits.

The government may find it difficult in practice to maintain a fixed exchange rate, as holders of substantial cash balances may speculate that there will be a devaluation. This means that fixed exchange rate regimes can be subjected to speculative attacks requiring the authorities to pursue deflationary policies such a reducing budget deficits and tightening monetary policy by raising short term interest rates.

Fixed exchange rates can on occasion be maintained only by imposing controls on capital flows, together with quotas and tariffs. This is economically inefficient as it prevents an efficient allocation of global capital and trade.

Risk of a crisis – fixed rates are often characterised by crises as pressure mounts on a currency to devalue or revalue. The fact that, with a floating rate, such changes are automatic should remove the element of crisis from international relations.

Need to maintain high levels of foreign exchange reserves. Under fixed exchange rates the authorities need to hold foreign exchange reserves to enable them to purchase the domestic currency in the face of a speculative attack on the currency,

*There were a large variety of responses to this question and some answers failed to discuss in sufficient detail both advantages and disadvantages of fixed and floating exchange rates. Listing advantages and disadvantages was not sufficient to obtain higher marks since some explanation was required.*

**38** There are various measures that could be adopted to reduce unemployment some of which are of a short-term and others that are of a long-term nature. Frictional unemployment is hard to reduce but improved information flows about job availability might help. Some argue that cuts in social security payments for the unemployed will increase the incentive for people to takes jobs, such policies can however prove to be highly politically contentious. Regional unemployment might be tackled by regional policy. However, the efficacy of such policies is far from clear cut as the fiscal consequences in the form of increased government expenditure in the way of subsidies, tax concessions can be damaging to other regions of the economy. In addition, regions tend to compete with each other to attract new investment significantly raising the cost of regional policies.

When it comes to structural unemployment which involves a mismatch between the unemployed and jobs available then longer term measures a better education and training programmes both at schools and in the workplace should lead to a more productive and employable labour force. Retraining programmes can also be useful in tackling structural unemployment. Education and training programmes are, however, costly in budgetary terms. Other measures designed to boost investment such as tax cuts and stable macroeconomic policies may also lead to higher employment levels over the longer term.

To reduce demand deficient unemployment in the short term, a fiscal expansion has been advocated, this could be increased government expenditure or cuts in taxes or some combination of the two. Fiscal policy could via multiplier effects lead to a boost to the economy, but the key question about fiscal policy concerns the financing of such an expansion. If fiscal expansion is financed by borrowing there will be upward pressure on interest rates which will partially crowd out investment and consumption. In addition, economic agents will anticipate future tax rises to repay any borrowing which will lead to further reductions in consumption and investment. If the fiscal expansion is financed by tax rises this will also crowd out private consumption and investment (although a balanced budget multiplier might come into play). A fiscal expansion may involve large fiscal deficits and a rising national debt to national income ratio.

To reduce demand deficient unemployment an alternative (or complement) to fiscal policy would be to reflate the economy through a monetary expansion. In the short run, a monetary expansion will lower interest rates and boost prices relative to wages which should lead to increased employment levels. However, in the long run wages will catch up relative to prices and this will mean that employers will then lay off workers. The effect of a monetary expansion over the longer run is therefore only to cause inflation.

Some argue that widespread unemployment in the economy can be caused by excessively high wages that reduce employers demand for labour and generous social

security benefits that reduce workers willingness to take up jobs. They argue that reductions in minimum wages, the weakening of trade union powers and reductions in unemployment benefits will lead to a better working of labour markets and consequently a reduction in unemployment.

Another possible policy that may be used by an economy with a fixed exchange rate is a devaluation of the currency to reduce large scale unemployment. This will tend to boost the export and import competing industries, at least in the short run. Over the long run the benefits of devaluation are far from clear cut, a devaluation raises the costs of imports including imported inputs, workers will seek wage rises to compensate and if the authorities adopt an accommodating monetary policy there is likely to be significant inflationary problems.

*Although many candidates identified different categories of unemployment many failed to engage sufficiently with the question asked which involved discussing policy measures that might reduce the category of unemployment identified. In particular some discussion of the merits and problems of the potential policy responses was required to get higher marks.*

## END OF EXAMINERS' REPORT