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**General Certificate of Education
June 2010**

GENERAL STUDIES

GENA2

Unit 2 Science and Society

Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Unit 1 Section A

(GENA2 AS Science and Society)

This component is an objective test for which the following list indicates the correct answers used in marking the candidates' responses.

| | | | |
|------|---|------|---|
| 1.1 | C | 1.16 | C |
| 1.2 | B | 1.17 | B |
| 1.3 | A | 1.18 | C |
| 1.4 | A | 1.19 | A |
| 1.5 | C | 1.20 | D |
| 1.6 | D | 1.21 | C |
| 1.7 | B | 1.22 | D |
| 1.8 | D | 1.23 | D |
| 1.9 | C | 1.24 | C |
| 1.10 | A | 1.25 | B |
| 1.11 | D | 1.26 | A |
| 1.12 | A | 1.27 | D |
| 1.13 | C | 1.28 | B |
| 1.14 | B | 1.29 | A |
| 1.15 | B | 1.30 | A |

Unit 2 Section B (AS Science and Society)

INTRODUCTION

The nationally agreed assessment objectives in the QCA Subject Criteria for General Studies are:

- AO1** Demonstrate relevant knowledge and understanding applied to a range of issues, using skills from different disciplines.
- AO2** Marshal evidence and draw conclusions: select, interpret, evaluate and integrate information, data, concepts and opinions.
- AO3** Demonstrate understanding of different types of knowledge appreciating their strengths and limitations.
- AO4** Communicate clearly and accurately in a concise, logical and relevant way.

- The mark scheme will allocate a number or distribution of marks for some, or all, of the above objectives for each question according to the nature of the question and what it is intended to test.
- In most cases mark schemes for individual questions are based on *levels* which indicate different qualities that might be anticipated in the candidates' responses. The levels take into account a candidate's knowledge, understanding, arguments, evaluation and communication skills as appropriate.
- Examiners are required to assign each of the candidates' responses to the most appropriate level according to **its overall quality**, then allocate a single mark within the level. When deciding upon a mark in a level examiners should bear in mind the relative weightings of AOs (see below). For example, the most weight should be given to AO1, then AO4, then AO2 and finally AO3.
- *Indicative content* is provided as a guide for examiners. It is not intended to be exhaustive and other valid points must be credited. Candidates do not have to cover all points mentioned to reach Level 3.
- A response which bears no relevance to the question should be awarded no marks.

Distribution of marks across questions and assessment objectives for Unit 2, Section B

| Question Numbers | | Q2 & Q3 | Q4 & Q5 | Q6 & Q7 | Total marks for Section B |
|---------------------------------|------------|-----------|-----------|-----------|---------------------------|
| Assessment Objectives | AO1 | 12 | 12 | 12 | 12 |
| | AO2 | 8 | 8 | 8 | 8 |
| | AO3 | 5 | 5 | 5 | 5 |
| | AO4 | 10 | 10 | 10 | 10 |
| Total marks per question | | 35 | 35 | 35 | 35 |

| Level of response | Mark range | Criteria and descriptors for Assessment Objectives 1–4 |
|-------------------|--------------|---|
| LEVEL 3 | 13 – 17 (18) | <p>Good response to question</p> <p>Good to comprehensive knowledge, understanding and approach demonstrating overall grasp of the range and nature of issues (AO1). Capacity to interpret evidence and sustained ability to present relevant arguments, analysis and exemplification, focusing on the main points of the question (AO2). Shows some understanding of different types of knowledge, with some appreciation of their limitations in seeking to reach a reasoned and logical conclusion (AO3). Ability to communicate clearly and accurately in a fluent and organised manner (AO4).</p> |
| LEVEL 2 | 7 – 12 | <p>Reasonable attempt to answer question</p> <p>Modest to quite good knowledge, understanding and approach demonstrating some grasp of the nature of some key issues (AO1). Moderate range of arguments, analysis and exemplification covering some of the main points of the question (AO2). Limited understanding of different types of knowledge but some ability to work towards or achieve a reasoned conclusion (AO3). Mostly clear and accurate communication and organisation (AO4).</p> |
| LEVEL 1 | 1 – 6 | <p>Limited response to the question</p> <p>Restricted / narrow knowledge and understanding of key issues (AO1). Simple, perhaps mostly unexplained points – or very narrow range – with limited interpretation or analysis and exemplification (AO2). Lacking in understanding of different types of knowledge with little or no evidence of ability to work towards a conclusion (AO3). Variable levels of communication and organisation (AO4).</p> |
| LEVEL 0 | 0 | <p>No valid response or relevance to the question.</p> |

02 In Britain, approximately one in seven couples experience fertility difficulties. About a third of these are because of male problems, the remainder because of female problems.

(17 marks)

Possible means of assisting fertility include:

- **hormone treatment:** The use of follicle-stimulating hormone can encourage the growth of ovarian follicles which can then be available for fertilisation; used in males, it can stimulate spermatogenesis; if successful, this can lead to conception through normal sexual intercourse.
- **artificial insemination:** A process by which sperm is placed in the reproductive tract of a female for the purpose of creating a pregnancy by means other than sexual intercourse; hormonal treatment may initially be used to encourage the development of eggs; fresh or frozen and subsequently thawed sperm from male partners or donors can then be injected into the cervix or directly into the uterus.
- **in vitro fertilisation (IVF):** Hormonal stimulation of the woman's ovaries is used to encourage the development of eggs; following ovulation, the fluid containing the egg cells is retrieved from the ovaries, after which the eggs are stripped of the surrounding cells and prepared for fertilisation; sperm provided by the male partner are separated from the seminal fluid and the sperm and egg are then incubated together in the culture media for about eighteen hours; in cases of low sperm count, a single sperm may be injected directly into the egg.
- The fertilised eggs are left in a growth medium until they have reached the 6-8 cell stage; usually embryos are transferred after three days, though if embryo quality is in doubt transfer may take place at five days; the embryo(s) judged best are transferred to the woman's uterus.
- **donation:** There are a number of different forms of donation:
 - egg donation – the provision of an egg by a third party when the woman wishing to conceive is infertile; fertilisation takes place using the IVF procedure
 - sperm donation – the provision of sperm by a third party when the woman wishing to conceive has an infertile partner or is single; fertilisation takes place using artificial insemination or IVF procedures
 - surrogacy – a woman carries a baby throughout pregnancy for another person ('donating' the use of her uterus); the recipient's eggs are extracted and fertilised using IVF techniques, and the embryo is then implanted into the surrogate's uterus
- **cryopreservation:** Freezing of eggs or embryos is now possible to enable conception or implantation to take place at a date at some point in the future:
 - eggs are extracted from the ovaries, as in the IVF procedure; they are then frozen slowly at a controlled rate, or flash-frozen, in a process known as vitrification; when thawed, they can be fertilised and implanted as in IVF
 - embryos are conceived using IVF techniques; the fertilised egg is left in a growth medium until it reaches the 6-8 cell stage, at which point it is frozen using the controlled freezing process, and then stored in liquid nitrogen; when thawed it can be transferred to the uterus
- **contraception:** Although not a 'procedure' mentioned in the source, it is acceptable to identify and explain contraception as a means of enabling women to choose the timing of their pregnancy.

Candidates should be able to achieve marks in the highest band with a selection of relevant points, not necessarily the complete range. Any other valid point not included here should be credited.

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| <p>LEVEL 3</p> <p>13 – 17 marks</p> | <ul style="list-style-type: none"> • identifies and explains four or five procedures, as referenced in the source • evidence of scientific understanding of the procedures • demonstrates awareness of how the procedures can be used by women • evidence of analysis, evaluation and/or a reasoned and logical conclusion • communicates clearly and accurately in a fluent and organised manner |
| <p>LEVEL 2</p> <p>7 – 12 marks</p> | <ul style="list-style-type: none"> • identifies and explains two or three procedures, as referenced in the source • OR identifies more than three procedures, but with limited explanation • some evidence of scientific understanding of the procedures • some awareness of how the procedures can be used by women • some evidence of analysis, evaluation and/or a reasoned and logical conclusion • mostly well-organised and fluently communicated |
| <p>LEVEL 1</p> <p>1 – 6 marks</p> | <ul style="list-style-type: none"> • identifies and explains one or two procedures, as referenced in the source • OR identifies more than two procedures, but with little/no explanation • little/no evidence of scientific understanding of the procedures • little/no awareness of how the procedures can be used by women • little/no evidence of analysis, evaluation or a reasoned and logical conclusion • variable organisation and communication |

These level descriptors are intended as a guide for examiners, who will exercise judgement on the quality of the answer as a whole.

03 Consider the reasons why women might choose to freeze eggs or embryos and discuss the extent to which it is 'ethically questionable' to do so.

(18 marks)

Reasons why might include the following:

- women diagnosed with cancer, prior to chemotherapy or radiation treatment which may damage the eggs or an embryo
- frozen eggs or embryos might be seen as an 'insurance policy', for example:
 - in the event of the death of a partner or child
 - for women with a family history of early menopause
- lifestyle choice – women choosing to put off pregnancy, perhaps for career reasons, until later in life, when there may be a risk of reduced fertility or congenital abnormality such as Down's syndrome
- some women may choose to freeze eggs rather than embryos for ethical reasons, believing that it is morally wrong to treat an embryo in this way
- to assist in the treatment of people who are infertile (women donate eggs and embryos for this purpose)

Ethical issues might include the following:

- there is an argument that 'creating' life in the laboratory in this way and artificially storing it, by-passing natural processes, is fundamentally wrong (some religions take this view); an alternative view is that assisting in the creation of life where it might otherwise be impossible is a highly moral action
- enabling women who are facing infertility as a result of chemotherapy or radiation treatment to conceive at a later date can be seen as ethical
- enabling women to put off pregnancy for 'lifestyle' or career reasons might be seen as trivialising the whole process of reproduction; an alternative view is that this is extending choice for women who would otherwise find it difficult to have a successful career or who need to continue working to sustain a reasonable standard of living
- the birth of children to post-menopausal women raises questions of what is 'natural', as well as questions about what is best for the child
- the freezing of fertilised eggs has led to disputes over the control of the embryo when the couple have subsequently separated
- there is a debate as to whether the freezing of eggs and embryos and the whole process of assisted reproduction is an appropriate use of scarce medical resources – infertility may be a problem for many individuals and couples, but it could be seen as a lower priority than treating patients with life-threatening conditions

Candidates should be able to achieve marks in the highest band with a selection of relevant points, not necessarily the complete range. Any other valid point not included here should be credited.

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| <p>LEVEL 3</p> <p>13 – 18 marks</p> | <ul style="list-style-type: none"> • identifies and comments on three or more reasons why eggs or embryos might be frozen • demonstrates awareness that some reasons might be considered more valid than others • identifies four or more ethical concerns • demonstrates awareness that there are contrasting ethical points of view • evidence of analysis, evaluation and a reasoned and logical conclusion • communicates clearly and accurately in a fluent and organised manner |
| <p>LEVEL 2</p> <p>7 – 12 marks</p> | <ul style="list-style-type: none"> • identifies and comments on two or more reasons why eggs or embryos might be frozen • OR identifies three or more reasons why eggs or embryos might be frozen, but with limited discussion • some awareness that some reasons might be considered more valid than others • identifies three or more ethical concerns • some awareness that there are contrasting ethical points of view • some evidence of analysis, evaluation and a reasoned and logical conclusion • mostly well-organised and fluently communicated |
| <p>LEVEL 1</p> <p>1 – 6 marks</p> | <ul style="list-style-type: none"> • identifies and comments on at least one reason why eggs or embryos might be frozen • OR identifies three or more reasons why eggs or embryos might be frozen, but with little/no discussion • little/no awareness that some reasons might be considered more valid than others • identifies one or two ethical concerns • little/no awareness that there might be contrasting ethical points of view • little/no evidence of analysis, evaluation or a reasoned and logical conclusion • variable organisation and communication |

These level descriptors are intended as a guide for examiners, who will exercise judgement on the quality of the answer as a whole.

04 Explain the significance of water for human life and activity.**(17 marks)**

Water is tasteless, odourless and transparent. Its chemical formula is H₂O: one molecule of water has two hydrogen atoms covalently bonded with a single oxygen atom. It exists in three states: liquid, solid (ice, snow) and gaseous (water vapour, as in steam and clouds).

Water covers 71% of the Earth's surface: 97.2% in the oceans, 1.8% in ice caps and glaciers, 0.9% as groundwater, 0.02% as freshwater in lakes and rivers, and 0.001% as atmospheric water vapour. Water vapour is a greenhouse gas, which contributes to the maintenance of temperatures on Earth suitable for human and other forms of life.

The amount of water on Earth is constant, but it is constantly moving on, above or below the surface of the Earth in the water cycle. The sun is the force behind the water cycle, which includes processes of evaporation, condensation and precipitation.

Water is essential for human life and activity:

- the human body consists of between 55% and 78% water
- water is a major constituent of blood, body fluids and tissues
- all cells carry out their reactions within an aqueous environment
- water is an essential reactant in many metabolic activities
- water is a product of aerobic respiration and is used to digest food
- the body requires between one and seven litres of water daily to avoid dehydration (dependent on levels of activity, temperature and humidity)
- water can be ingested through food, drinks (including tea and coffee) as well as 'straight'
- it is dangerous to drink too little water (leading to dehydration) and too much water (hyperhydration)
- water is removed by the kidneys in urine, and in faeces, sweat and as water vapour in the breath
- photosynthesis, which requires water, is the basis of (almost) all of the food chains on which we depend
- water is the medium in which many of our foods are found – fish, shellfish, etc
- water is used for washing the body, food, clothes, etc
- water is used in some religious purification rituals
- human wastes are carried and diluted by water in the sewage system
- water is used in industry to generate power and as a coolant
- water is essential in agriculture for irrigation of crops and for animal production
- water is important for human recreation – for example, swimming, boating, skiing, etc
- clean water is essential for good health – polluted water can lead to illness and death

Candidates should be able to achieve marks in the highest band with a selection of relevant points, not necessarily the complete range. Any other valid point not included here should be credited.

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| <p>LEVEL 3</p> <p>13 – 18 marks</p> | <ul style="list-style-type: none"> • identifies and explains eight or more ways in which water is important for human life and/or activity • demonstrates scientific understanding of the importance of water • clear exemplification is evident • evidence of analysis, evaluation and/or a reasoned and logical conclusion • communicates clearly and accurately in a fluent and organised manner |
| <p>LEVEL 2</p> <p>7 – 12 marks</p> | <ul style="list-style-type: none"> • identifies and explains up to seven ways in which water is important for human life and/or activity • OR identifies eight or more ways in which water is important for human life and/or activity, but with limited explanation • demonstrates some scientific understanding of the importance of water • some exemplification is evident • some evidence of analysis, evaluation and/or a reasoned and logical conclusion • mostly well-organised and fluently communicated |
| <p>LEVEL 1</p> <p>1 – 6 marks</p> | <ul style="list-style-type: none"> • identifies and explains up to four ways in which water is important for human life and/or activity • OR identifies more than five ways in which water is important for human life and/or activity, but with little/no explanation • demonstrates little/no scientific understanding of the importance of water • little/no exemplification is evident • little/no evidence of analysis, evaluation or a reasoned and logical conclusion • variable organisation and communication |

These level descriptors are intended as a guide for examiners, who will exercise judgement on the quality of the answer as a whole.

05 Discuss the causes and possible consequences of water scarcity in the 21st century.
(18 marks)

The amount of water in the world is finite. There is more than enough water available, in total, for everyone's basic needs. The UN recommends that people need a minimum of 50 litres a day for drinking, washing, cooking and sanitation. However, access to water is not evenly distributed geographically and the demands on its use are increasingly rapidly.

Causes of water scarcity:

- population expansion: the current population of the world is approximately 6.7 billion, but it is expected to rise to 9 billion by 2050; between a third and a half of the population will be living in water-stressed countries
- agriculture accounts for 70% of freshwater use globally; the rising population increases demand for agricultural products, while increasing living standards increases demand for more water-intensive products such as meat; the demand in advanced countries for 'year-round' access to fresh fruit and vegetables leads to water-intensive production in areas with limited water supply
- urbanisation and improved living standards lead to increased demand for water, in terms of food, hygiene and sanitation; the growth and expansion of cities in the Gulf (e.g. Dubai) in very arid regions is putting huge pressure on available resources
- industrialisation is spreading across the world, particularly in South America (e.g. Brazil) and Asia (e.g. India and China); this in turn leads to a huge increase in demand for water; industrial pollution reduces the availability of usable water
- the expansion of recreation and leisure facilities (e.g. golf courses) in areas with limited precipitation (e.g. Spain, the Gulf states) puts significant pressure on scarce resources
- climate change will probably result in some areas of the world experiencing increased precipitation, but others (e.g. parts of Africa, central and south Asia, Australia) will experience increasingly arid conditions, or are already doing so

Possible consequences of water scarcity may include:

- increased health problems and deaths as result of restricted access to water for basic personal hygiene; already at least 5 million people die annually from waterborne diseases
- famine in areas of severely restricted access to water is likely to be a regular feature of the 21st century
- population movement from water-poor parts of the world to water-rich areas is likely; this will reinforce the current economic migration from less-developed to more-developed countries
- potentially increased risk of conflict (both diplomatic and military) over water resources, for example between N and S Korea, India and China, Palestine and Israel, Egypt and Ethiopia
- reduced biodiversity – especially the decline of wetlands (marshes and bogs) and the species which live in them
- increased water scarcity may act as a spur to conservation measures and the development of technological and biotechnological measures to reduce demand and/or increase supply – for example, GM crops, desalination processes

Candidates should be able to achieve marks in the highest band with a selection of relevant points, not necessarily the complete range. Any other valid point not included here should be credited.

| | |
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| <p>LEVEL 3</p> <p>13 – 18 marks</p> | <ul style="list-style-type: none"> • identifies and comments on four or more causes of water scarcity • understands that water scarcity is driven by technological and economic developments in human societies • identifies and comments on four or more possible consequences of water scarcity • considers the significance and probability of the possible consequences of water scarcity • evidence of analysis, evaluation and/or a reasoned and logical conclusion • communicates clearly and accurately in a fluent and organised manner |
| <p>LEVEL 2</p> <p>7 – 12 marks</p> | <ul style="list-style-type: none"> • identifies and comments on two or three causes of water scarcity • OR identifies four or more causes of water scarcity, but with limited discussion • some understanding that water scarcity is driven by technological and economic developments in human societies • identifies and comments on two or three possible consequences of water scarcity • OR identifies four or more possible consequences of water scarcity, but with limited discussion • some consideration of the significance and probability of the possible consequences • some evidence of analysis, evaluation and/or a reasoned and logical conclusion • mostly well-organised and fluently communicated |
| <p>LEVEL 1</p> <p>1 – 6 marks</p> | <ul style="list-style-type: none"> • identifies and comments on at least one cause of water scarcity • OR identifies two or more causes of water scarcity, but with little/no discussion • little/no understanding that water scarcity is driven by technological and economic developments in human societies • identifies and discusses at least one possible consequence of water scarcity • OR identifies more than one possible consequence of water scarcity, but with little/no discussion • little/no consideration of the significance and probability of the possible consequences • little/no evidence of analysis, evaluation or a reasoned and logical conclusion • variable organisation and communication |

These level descriptors are intended as a guide for examiners, who will exercise judgement on the quality of the answer as a whole.

06 Explain how access to computers and the internet can be beneficial to individuals and families.**(17 marks)**

Computers are available to the domestic market principally in the forms of desktop computers and laptops. The main uses of computers in the home, apart from internet use, are:

- word processing – this is useful to create documents which are easily edited and manipulated for correspondence, report writing, student projects, etc
- spreadsheets – data can be entered into cells; complex calculations can be made easily and represented in a variety of formats; it can be used to store and calculate financial information
- databases – also a means of storing, organising and managing data; databases might be used in a domestic setting to keep records of contacts and personal belongings and equipment
- games – there are many computer games on the market, available on physical media such as CDs and DVDs or online

Computer users can gain access to the internet through the telephony system, either by dial-up modem (which is relatively slow) or, increasingly, by broadband connexion (which is much faster and allows much more information to be transmitted at the same time).

The **benefits to individuals and families** can include:

- enhanced access to news and information – for example, through online newspaper sites, online encyclopaedias,
- easy access to public and governmental information – for example, websites of local authorities, Parliament and government departments
- the opportunity to interact with public agencies online – for example, tax returns, car taxation and driver licensing
- ability to manage personal finances without going to a bank or other institution – payment of bills, movement of money between accounts
- increased capacity for home working
- ability to store and share information – for example, photographs
- entertainment and games, including online gambling (though this may be seen as a negative)
- shopping, from groceries to furniture and computers, can ordered at discounted prices, to be delivered directly to the home
- price comparison sites enable consumers to identify the cheapest option in many areas, including insurance, travel and other consumer products
- booking of holidays, rail and air journeys, hotels, etc
- finding a partner through online dating agencies
- communicating with friends through social networking sites

Candidates should be able to achieve marks in the highest band with a selection of relevant points, not necessarily the complete range. Any other valid point not included here should be credited.

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| <p>LEVEL 3</p> <p>13 – 18 marks</p> | <ul style="list-style-type: none"> • identifies and explains three or more ways in which computers can be beneficial to individuals and/or families • demonstrates understanding of the nature of computer technology • identifies and explains six or more ways in which access to the internet can be beneficial to individuals and/or families • awareness that some uses of the internet can be less beneficial to users than others • evidence of analysis, evaluation and/or a reasoned and logical conclusion • communicates clearly and accurately in a fluent and organised manner |
| <p>LEVEL 2</p> <p>7 – 12 marks</p> | <ul style="list-style-type: none"> • identifies and explains two or more ways in which computers can be beneficial to individuals and/or families • OR identifies three or more ways in which computers can be beneficial to individuals and/or families, but with limited explanation • some understanding of the nature of computer technology • identifies and explains four or more ways in which access to the internet can be beneficial to individuals and/or families • OR identifies six or more ways in which access to the internet can be beneficial to individuals and families, but with limited explanation • some awareness that some uses of the internet can be less beneficial to users than others • some evidence of analysis, evaluation and/or a reasoned and logical conclusion • mostly well-organised and fluently communicated |
| <p>LEVEL 1</p> <p>1 – 6 marks</p> | <ul style="list-style-type: none"> • identifies and explains one or more ways in which computers can be beneficial to individuals and/or families • OR identifies two or more ways in which computers can be beneficial to individuals and/or families, but with limited explanation • little/no understanding of the nature of computer technology • identifies and explains up to three ways in which access to the internet can be beneficial to individuals and families • OR identifies more than three ways in which access to the internet can be beneficial to individuals and families, but with little/no explanation • little/no awareness that some uses of the internet can be less beneficial to users than others • little/no evidence of analysis, evaluation or a reasoned and logical conclusion • variable organisation and communication |

These level descriptors are intended as a guide for examiners, who will exercise judgement on the quality of the answer as a whole.

07 Discuss the extent to which social differences influence the benefits to be gained from these technologies and how far more equal access is possible or desirable. (18 marks)

The source gives some clear examples of social differences which give rise to differential access to the benefits of new technology:

- Regional differences – the south east of England has a higher proportion of homes with internet access than the north east. This mirrors other differences between the two regions, related to their economic and social composition – for example, average incomes, unemployment, health, etc.
- Age – the source claims that 7 million people over 65 had never used the internet. This may be partly due to unwillingness on the part of older people to try something new, but also because older people are likely to have less disposable income than others and so are less likely to be able to afford the initial set-up and running costs of a computer and internet connexion.
- Gender – though the proportions are not specified, the source says that men are more likely to go online every day than women. This might be related to the type of work done by men and women, but more probably is related to the greater amount of time women traditionally spend on childcare and domestic work, leaving less time available for surfing the net.
- Education – the source indicates that 93% of adults under 70 with a university degree had internet access; while only 56% of those with no formal qualifications did so. Those with a better education are more likely to have the skills and knowledge to be able to use the technology, the money to afford the equipment and the type of job which makes accessing the internet relatively easy at work.

Differential access to the internet is closely associated with other indices of social difference – for example, there are similar regional, age, gender and educational attainment differences in relation to average incomes, types of employment and levels of unemployment. Differences in health, age of death and likelihood of being a victim of crime are also linked to regional and class differences.

Is it **desirable** to have more equal access to new technology?

- Presumably, the answer must be yes, given the benefits described in part (a), and the claim of Help the Aged that internet access allowed people to save hundreds of pounds. However, no doubt many individuals would choose not to exercise this opportunity for personal reasons, even if given equal access.

Is it **possible** to have more equal access?

- On the one hand, it is likely that, as more people grow up with new technology and go through the education system with an increasing emphasis on ICT, then a greater proportion of the population will ultimately be able to access the internet. In the shorter term, libraries and adult education classes can give an opportunity to older and poorer people to go online and develop relevant skills.
- On the other hand, the social differences that have been identified are so long-standing and so ingrained that it seems unlikely that the gap between individuals from different social backgrounds will disappear in the foreseeable future.

Candidates should be able to achieve marks in the highest band with a selection of relevant points, not necessarily the complete range. Any other valid point not included here should be credited.

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| <p>LEVEL 3</p> <p>13 – 18 marks</p> | <ul style="list-style-type: none"> • identifies four ways in which access to computers and the internet is affected by social differences • discusses the reasons for and the extent of these social differences • considers the desirability of more equal access to computer technology • discusses the possibility of more equal access to computer technology • demonstrates awareness that there are different ways in which this might be achieved • evidence of analysis, evaluation and/or a reasoned and logical conclusion • communicates clearly and accurately in a fluent and organised manner |
| <p>LEVEL 2</p> <p>7 – 12 marks</p> | <ul style="list-style-type: none"> • identifies three ways in which access to computers and the internet is affected by social differences • OR identifies more than three ways in which access to computers and the internet is affected by social determinants, but with limited explanation • some discussion of the reasons for and the extent of these social differences • some consideration of the desirability of more equal access to computer technology • some discussion of the possibility of more equal access to computer technology • some awareness that there are different ways in which this might be achieved • some evidence of analysis, evaluation and/or a reasoned and logical conclusion • mostly well-organised and fluently communicated |
| <p>LEVEL 1</p> <p>1 – 6 marks</p> | <ul style="list-style-type: none"> • identifies one or two ways in which access to computers is affected by social differences • OR identifies more than two ways in which access to computers and the internet is affected by social determinants, but with little/no explanation • little/no discussion of the reasons for and the extent of these social differences • little/no consideration of the desirability of more equal access to computer technology • little/no discussion of the possibility of more equal access to computer technology • little/no awareness that there are different ways in which this might be achieved • little/no evidence of analysis, evaluation or a reasoned and logical conclusion • variable organisation and communication |

These level descriptors are intended as a guide for examiners, who will exercise judgement on the quality of the answer as a whole.