



# **0417 Past Papers**

## **ICT**

### **Chapter 5**

## **The Effects of Using IT**

**Teacher: Ashraf Al-Massou**

- (c) The developer spends a great deal of time using a computer.

For each of the statements given, identify a health problem and describe a possible solution.

Your answers must be different in each case.

	Health problem	Possible solution
Using a mouse for a long period of time		
Sitting for too long in one position		

[4]

7(c)

	Health problem	Possible solution
Using a mouse for a long period of time	Repetitive strain injury	Use a wrist rest Take regular breaks Use a trackball//an ergonomic mouse Hand exercises Voice activated software
Sitting for too long in one position	Back problems	Use a foot rest Take regular breaks Walk around//stand up Use an ergonomic/adjustable chair Sit with correct posture//with straight back

- 9 A company operates from 08:00 to 19:00, Monday to Friday. Full-time employees work a 40-hour week, starting at 09:00 and finishing work at 17:00.

For each of the times worked by an employee, write down the most appropriate working pattern.

- (a) An employee works from 09:00 to 13:00, Monday to Friday.

..... [1]

- (b) An employee works from 09:00 to 19:00, Monday to Thursday.

..... [1]

- (c) The work of two employees combined is a 40-hour week; each work for two full days and a half day.

..... [1]

- (d) An employee works a full 8-hour day but has negotiated with his employer to complete this at some point between 08:00 and 19:00, each day.

..... [1]

Question	
9(a)	Part time
9(b)	Compressed hours
9(c)	Job sharing
9(d)	Flexible hours

- 10 Describe the advantages, to both the company and employees, of changing work patterns due to the introduction of computers.

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Six from:

**Advantages to employees**

Staff are more flexible when they work so they can carry out other activities

Staff are more contented as they can work hours which suit their home life

They can start later/earlier so they avoid rush hour in the morning, so they do not arrive stressed

They can start earlier/work later to avoid rush hour in evening so cuts travel time

Compressed hours can lead to longer holidays/weekends therefore staff more refreshed

Part time working allows people with other commitments to work

Job sharing allows a piece of work to be completed using the skills set of more than one worker therefore cutting stress

Working from home allows employees to balance their home life

[6]

**Advantages to the company**

Working from home allows the company to employ people from around the world

Working from home allows the company to save costs by not needing large offices

Helps employers retain their employees...

...therefore cutting training/recruitment costs

Flexi-time allows company offices to remain open longer

Job sharing reduces training costs

To gain full marks there needs to be advantages to both the employees and the company

- 2 Circle **two** jobs where there has been an increase in employment as a direct result of the introduction of computers.

Car production workers      Cleaning staff      Delivery drivers for retail stores      Medical staff  
Payroll workers      Secretaries      Teachers      Website designers

[2]

Question	
2	Delivery drivers for retail stores Website designers

- 2 Circle **two** jobs where there has been a decrease in employment as a direct result of the introduction of computers.

Bus drivers      Car production workers      Delivery drivers for retail stores      Fishermen  
Payroll workers      Programmers      Teachers      Website designers

[2]

Question	
2	Car production workers Payroll workers

- 6 As a student you often use a computer screen. This could be a screen on a desktop computer, a laptop computer or even a smartphone.

Evaluate your use of computer screens, in terms of health risks, and explain any strategies you use to minimise these health risks.

6	<p><b>Problem:</b></p> <p><b>Award a mark for each problem identified</b></p> <p>I avoid back and neck problems</p> <p>I avoid eye strain</p> <p>I avoid getting headaches</p> <p>I avoid epilepsy</p> <p><b>Strategies:</b></p> <p>Max <b>four</b> from:</p> <p>Make sure the top of the screen is at eye level</p> <p>Make sure that I adjust the tilting screen correctly</p> <p>Take regular breaks</p> <p>Do neck/back exercises</p> <p>Make sure I use blue lens spectacles</p> <p>Use a screen filter</p> <p>Use a matt/anti-glare screen</p> <p>Turn the screen away from the window</p> <p>Use a computer screen for a short time/take regular breaks</p> <p>Have my eyes tested regularly</p> <p>Improve the lighting in the room</p> <p>Sitting further away from the screen</p> <p>Keeping the screen clean</p> <p>Position the screen to reduce glare</p> <p>Use a non-flickering screen/LED/LCD</p> <p>Turn the brightness down on the screen</p>	
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- 6 As a student you often use a computer keyboard. This could be a virtual keyboard or a physical keyboard on a desktop computer, a laptop computer or even a smartphone.

Evaluate your use of computer keyboards in terms of health risks, and explain any strategies you use to minimise these health risks.

6

**Health problem:**

Award **one** mark for each problem identified

I can reduce Carpel Tunnel Syndrome

I can reduce Cubital Tunnel Syndrome

I can reduce neck/back pain

**Strategies:**

Max **six** strategies

Take frequent breaks

Use hand exercises

Not pressing the keyboard too hard

Use software to reduce the pressure on the keys

Use voice recognition/microphone

Use predictive text//shortcuts

Use ergonomic keyboards

Use a wrist rest

Lift the wrists up when typing

Maintain a correct posture

Activate Windows

Go to Settings to activate Windows

[8]

9 People rely heavily on microprocessor-controlled devices in the home.

- (a) Describe **two** drawbacks in terms of **lifestyle** changes this has produced for the users of such devices.

- 1..... **Two from:**  
 ..... Can lead to unhealthy eating due to dependency on ready meals  
 ..... Can lead to laziness  
 2..... Lack of fitness/exercise  
 ..... Manual household skills are lost

[2]

- (b) Many of the **microprocessor-controlled** devices in our homes use WiFi connections.

Describe the benefits and drawbacks of using WiFi connections in this way.

- 9(b) **Max four from:**
- Drawbacks  
 Security issue with the data being sent as passwords can be accessed  
 Leads to laziness as voice control used  
 Heavily reliant on power/battery power  
 Other people can hack devices  
 Reliant on the WiFi connection  
 Can be affected by walls/weather  
 Affected by distance from the WAP
- Max four from:**
- Benefits  
 Smartphones can connect to the devices and can control them  
 Wireless so no tripping over wires  
 Voice control can be used to activate the devices  
 Home surveillance from afar  
 TV on demand  
 Keyless door locks are more secure

[6]



12 (a) Describe repetitive strain injury (RSI) and explain what causes it.

12(a)

Damage to fingers and wrists – 1 mark

**One** from:

Caused by continuous use of a keyboard

Caused by repetitive clicking of a mouse button

[2]

(b) Give **three** ways of minimising the risk of RSI.

1

12(b)

**Three** from:

Use an ergonomic keyboard

Use an ergonomic mouse

Use a wrist rest/use a mouse rest

Use voice-activated software

Take regular breaks

Maintain correct posture of arms

3

[3]

10 The modern home relies heavily on **microprocessor-controlled devices**. One of the benefits is that a worker is able to return home to a warm house having set the heater control to switch on at a certain time.

(a) Describe **four** benefits in terms of **lifestyle changes** that this has produced for the users of such devices.

- 1..... **Four from:**  
 ..... People no longer have to do manual tasks therefore more time to do other things  
 .....  
 2..... To go out of the house when food is being cooked/washing is being done  
 ..... Can control the devices remotely  
 ..... Greater sense of security with automated burglar alarms  
 3..... Use of smart fridges can lead to a healthy diet  
 ..... More time with the family  
 ..... Can do leisure activities when it is convenient  
 ..... Can do their shopping convenient to them  
 4..... Can set timers for washing/cooking

[4]

(b) The worker has set the heater control to switch on at 16:00 for two hours.

Explain how the **microprocessor can operate** the automatic heater to turn on and off at the correct times.

**Six from:**  
 Microprocessor constantly checks ...  
 ... current time against the start time  
 If the current time is less than the set time nothing happens  
 If they are the same the microprocessor sends a signal ...  
 ... to the actuator to turn the heater on  
 The microprocessor calculates the end time by adding 2 hours to the start time  
 The microprocessor checks the current time against the end time  
 When they are equal the microprocessor sends a signal to the actuator to turn the heater off

[6]

- 11 For each of the following pieces of hardware, explain the strategies you would use to help minimise health problems.

(a) Monitor .....  
 .....  
 .....  
 .....  
 ..... [3]

(b) Keyboard .....  
 .....  
 .....  
 ..... [2]

11(a)

**Three from:**

Use a flat screen monitor to reduce the eye strain  
 Use matt finish/anti-glare screens to stop glare  
 Use screens that can be tilted to reduce neck pain  
 Use screens that have height adjustment  
 Turn the monitor 90 degrees to a window to reduce glare  
 Use LCD monitors to reduce screen flicker  
 Use screen filters//lower the brightness  
 Do not sit too close to the screen  
 Use LED to reduce eye strain

11(b)

**Two from:**

Use wrist/hand rests to reduce RSI  
 Use ergonomic keyboards to reduce RSI  
 Use voice activated software to reduce the use of the keyboard  
 Ensure correct posture when typing on the keyboard  
 Take breaks/use stretching exercises

10 The use of ICT in organisations has changed the way in which employees work.

(a) Describe, giving an example, what is meant by compressed hours.

.....

10(a)

The worker completes the normal working hours per week  
But works fewer days

For example: a 40 hour week compressed into 4 days not 5

.....

..... [3]

(b) Describe, giving an example, what is meant by flexible working.

.....

.....

.....

.....

.....

..... [3]

10(b)

Workers complete the same amount of hours over a working week  
Workers can choose when to start and end in agreement with the manager

For example: Workers start at 9:30 rather than 9am to miss school run/miss  
rush hour

Explanation of flexible schedule

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- 12 The use of computers continues to change the way employees work.
- (a) Describe how the use of computers has led to a number of employees changing their working patterns.

[6]

	Health problem	Possible solution
Looking at a monitor for a long period of time		1 ..... ..... ..... 2 ..... .....
Sitting too close to the office laser printer		1 ..... ..... ..... 2 ..... .....

Question	Answer	Marks
12(a)	<p><b>Six</b> from</p> <p>Some workers may job-share with other workers ...  ... this means that two workers share the same job one starting as the other finishes</p> <p>Some workers may work compressed hours ...  ... this means working a five-day week but compressed to four days</p> <p>Some workers may work flexible hours ...  ... the worker and the employer negotiate a time the employee works  ... this means the employee can arrive later/leave later as long as they work the set number of hours</p> <p>Workers can change their work pattern to meet domestic chores/avoid rush hour</p> <p>Some workers can work from home</p>	<b>6</b>
12(b)	<p><b>Looking at a monitor for a long period of time</b></p> <p><u>Health problem</u>  <b>One</b> from  Eye strain/headache/dry eyes/eye problems</p> <p><u>Possible solution</u>  <b>Two</b> from  Resting the eyes by looking in the distance/taking regular breaks  Cutting down on glare  Making sure the screen is at eye level  Using blue screen technology  Using flat screen technology  Using (blue) glasses  Using anti-flicker screen  Reducing the brightness of the screen</p> <p><b>Sitting too close to the office laser printer</b></p> <p><u>Health problem</u>  <b>One</b> from  Ozone irritation/dry skin/respiratory problems</p> <p><u>Possible solution</u>  <b>Two</b> from  Proper room ventilation/use of fans  Laser printers should be housed in a dedicated printer room  Changing to other forms of printer</p>	<b>6</b>

17 There are many microprocessor controlled devices in the modern home. Discuss the effects of these on people's lifestyles.

[6]

17 Any **six** from:

Positive:

- microprocessor controlled devices do much of the housework
- do not need to do many things manually
- do not need to be in the house when food is cooking
- do not need to be in the house when clothes are being washed
- can leave their home to go shopping/work at any time of the day
- greater social interaction/more family time
- more time to go out/more leisure time/more time to do other things/work
- are able to do other leisure activities when convenient to them
- can encourage a healthy lifestyle because of smart fridges analysing food constituents
- do not have to leave home to get fit

Negative

- can lead to unhealthy eating due to dependency on ready meals
- can lead to laziness/lack of fitness
- microprocessor controlled burglar alarm provides a sense of security
- manual household skills are lost

one mark is available for a reasoned conclusion

[6]



- 7 The introduction of computers into an organisation's payroll department has affected employees' working patterns. Two examples of this are part-time working and job sharing.

(a)

- (i) Describe what is meant by part-time working.

.....  
..... [2]

- (ii) Describe what is meant by job sharing.

.....  
..... [2]

- (b) The introduction of these computers has had positive and negative effects on the payroll department's workers.

Describe the benefits to workers of introducing computers into this department.

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.....  
.....  
.....  
.....  
.....  
.....  
..... [4]

Question	Answer	Marks
7(a)(i)	<b>Two from:</b> Workers that work less than full time / limited number of hours This could be for <u>fewer</u> hours than a full working day/week This could be for <u>fewer</u> days than a full working week	2
7(a)(ii)	<b>Two from:</b> A <u>full time</u> job is shared between part time / two or more workers One continues the work when the other has left One could work in the morning and the other in the afternoon One could work for 3 days and the other 2 other days	2
7(b)	<b>Four from:</b> Staff are kept more up to date with their work Increase in job opportunities More accurate calculation of wages / less errors made in the calculations Manual tasks are reduced  1 mark can be awarded for an example of new jobs created	4

**13** The introduction of computers in an organisation can both increase or decrease employment.

**(a)** Tick the jobs below for which the introduction of computers will increase the number of workers.

Job description	tick (✓)
Car production workers	
Delivery drivers	
Payroll workers	
Programmers	
Typists	
Website designers	

[3]

(b) Describe what is meant by the following types of working.

Compressed hours.....

.....

.....

Flexible hours.....

.....

.....

[4]

Question	Answer	Marks														
13(a)	<table><tr><th>Job description</th><th>tick (✓)</th></tr><tr><td>Car production workers</td><td></td></tr><tr><td>Delivery drivers</td><td>✓</td></tr><tr><td>Payroll workers</td><td></td></tr><tr><td>Programmers</td><td>✓</td></tr><tr><td>Typists</td><td></td></tr><tr><td>Website designers</td><td>✓</td></tr></table>	Job description	tick (✓)	Car production workers		Delivery drivers	✓	Payroll workers		Programmers	✓	Typists		Website designers	✓	3
Job description	tick (✓)															
Car production workers																
Delivery drivers	✓															
Payroll workers																
Programmers	✓															
Typists																
Website designers	✓															
13(b)	<p><b>Compressed hours</b></p> <p>Any <b>two</b> from:</p> <ul style="list-style-type: none"><li>– The worker completes the normal working hours per week...</li><li>– ...but works for fewer days</li><li>– For example, a 40-hour week compressed into 4 days not 5</li></ul> <p><b>Flexible hours</b></p> <p>Any <b>two</b> from:</p> <ul style="list-style-type: none"><li>– Workers complete the same number of hours over a working week...</li><li>– ...but can choose when to start and end in agreement with the manager</li><li>– Allows for workers to complete the school run or miss rush hour</li></ul>	4														

5 Identify **three** ways in which employment patterns have changed since the introduction of ICT.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

Question	Answer	Marks
5	Any <b>three</b> from: Part time working Job-sharing Compressed hours Flexible hours/flexi-time	<b>3</b>

7 The introduction of computers into the workplace has caused some changes in employment.

(a) Identify **two** different types of job where employment has **decreased**.

1 .....

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2 .....

.....

[2]

(b) Identify **two** different types of job where employment has **increased**.

1 .....

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2 .....

.....

[2]

7 (a) **Two** from:

Payroll workers  
Typing pool workers  
Car production workers  
Checkout operators  
Bank workers

[2]

(b) **Two** from:

Website designers  
Computer programmers  
Delivery drivers in retail stores  
Computer maintenance staff  
Robot maintenance staff

[2]

- 8 There are many microprocessor controlled devices used in the modern home.

Describe **two** drawbacks in terms of lifestyle changes this has produced for the users of such devices.

- 1 .....
- .....
- 2 .....
- .....

[2]

- 8 **Two** from:

Can lead to unhealthy eating due to dependency on ready meals

Can lead to laziness

Lack of fitness/exercise

Manual household skills are lost

[2]

- 4 The use of computers has led to some employees changing their working patterns.

Complete the following sentences.

- (a) Two or more employees doing the same job but working at different times is called  
.....[1]
- (b) When a person is employed to work fewer hours than the normal working week, this is called  
.....[1]
- (c) When employees work the full normal hours in a week but work at times which suit them and the employer, this is called  
.....[1]
- (d) When an employee works the full normal hours in a week but works fewer days, this is called  
.....[1]

- |   |                                     |     |
|---|-------------------------------------|-----|
| 4 | (a) <u>job sharing</u>              | [1] |
|   | (b) <u>part-time</u> working        | [1] |
|   | (c) working <u>flexible hours</u>   | [1] |
|   | (d) working <u>compressed hours</u> | [1] |

- 6 There are many microprocessor-controlled devices used in the modern home.

Describe **four** benefits in terms of lifestyle for users of such devices.

- 1 .....
- 2 .....
- 3 .....
- 4 .....

[4]

- 6 **Four** from:

Microprocessor controlled devices do much of the housework  
 Do not need to do many things manually  
 Do not need to be in the house when food is cooking  
 Do not need to be in the house when clothes are being washed  
 Can leave their home to go shopping/work at any time of the day  
 Greater social interaction/more family time  
 More time to go out/more leisure time/more time to do other things/work  
 Are able to do other leisure activities when convenient to them  
 Can encourage a healthy lifestyle because of smart fridges analysing food constituents  
 Do not have to leave home to get fit

[4]



- 10 Explain how the number of jobs available to workers has been affected by the use of ICT in commerce and industry, using specific examples. Refer in your answer to jobs created as well as job losses.

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.....[5]

**10 Five from:**

**Max four from:**

e.g.

Fewer secretaries needed – computers provide much of the secretarial expertise once provided by a secretary

Fewer general office staff needed – workload has been reduced by the storage capacity of computers

Computerised accounting packages – fewer accountants needed

Stock control used to require specialists but is now done through computerised checkout systems

Security systems – computerised security gates have caused a reduction in the number of people employed for store security

Automated return and issue systems in libraries have led to a number of library staff being made redundant

Production lines are now operated by robots reducing the number of jobs available to production line workers

**Max four from:**

Increase in employment of ICT systems/network maintenance workers

Increase in employment of robot maintenance workers

Increase in employment of programmers

Increase in employment of web designers

Increase in employment of computer operators

Increase in employment of van drivers by online retail industries

More workers needed to manufacture robots

[5 max]

5 Tick whether the following statements are TRUE or FALSE.

	TRUE ✓	FALSE ✓
Pen drives are used to make backups on large company file servers.		
Magnetic tapes use direct access when searching for records.		
Fixed hard discs have slower access times than optical discs.		
DVD RWs allow you to save new data to them.		
A CD has greater storage capacity than a DVD.		

[5]

5

Pen drives are used to make backups on large company file servers.		✓
Magnetic tapes use direct access when searching for records.		✓
Fixed hard discs have slower access times than optical discs.		✓
DVD RWs allow you to save new data to them	✓	
A CD has greater storage capacity than a DVD		✓

[1]

[1]

[1]

[1]

[1]