



**DESIGN TECHNOLOGY  
 HIGHER LEVEL  
 PAPER 3**

Thursday 16 November 2000 (morning)

1 hour 15 minutes

Name

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Number

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**INSTRUCTIONS TO CANDIDATES**

- Write your candidate name and number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all of the questions from two of the Options in the spaces provided. You may continue your answers in a continuation answer booklet, and indicate the number of booklets used in the box below. Write your name and candidate number on the front cover of the continuation answer booklets, and attach them to this question paper using the tag provided.
- At the end of the examination, indicate the letters of the Options answered in the boxes below.

OPTIONS ANSWERED	EXAMINER	TEAM LEADER	IBCA
	/20	/20	/20
	/20	/20	/20
NUMBER OF CONTINUATION BOOKLETS USED	TOTAL	TOTAL	TOTAL
.....	/40	/40	/40

**Option D – Food technology**

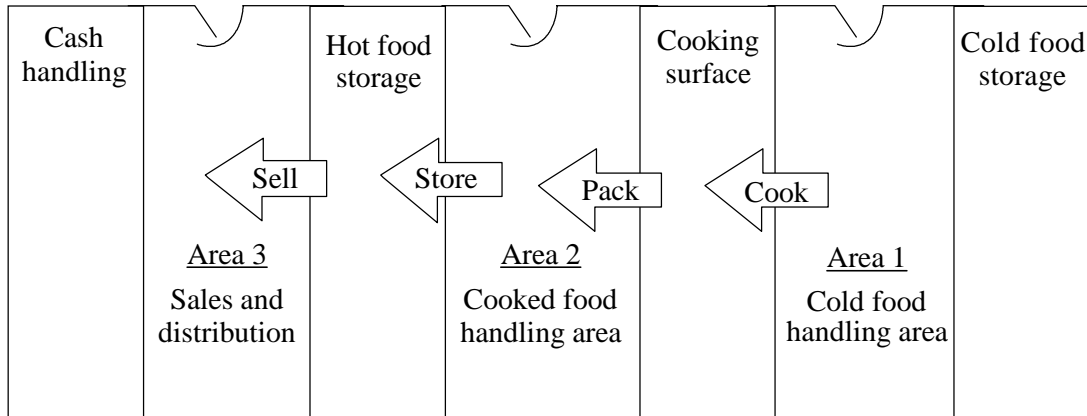
**D1.** The schematic diagram below shows a typical layout for the food preparation and service area of a fast food restaurant. It is split into three areas:

Area 1 – cold food handling area;

Area 2 – cooked food handling area;

Area 3 – sales and distribution.

Individual members of staff remain in one area throughout their working shift.



The staff in such restaurants tend to be unskilled and are trained to cook the high volume of products for standard times.

(a) Outline **one** reason why the specifications for the food products must be extremely well standardised. [2]

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(b) Identify **two** aspects of the design specification of a burger which must be standardised. [2]

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The range of products available is extremely limited.

(c) Describe **one** advantage and **one** disadvantage for regular users of the fast food restaurant. [2]

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**D2.** Explain **one** way in which the processing method used for making bread affects its organoleptic properties. [2]

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**D3.** Define *food additive*. [1]

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**D4.** List **two** pieces of information on a food label important for the health of consumers. [2]

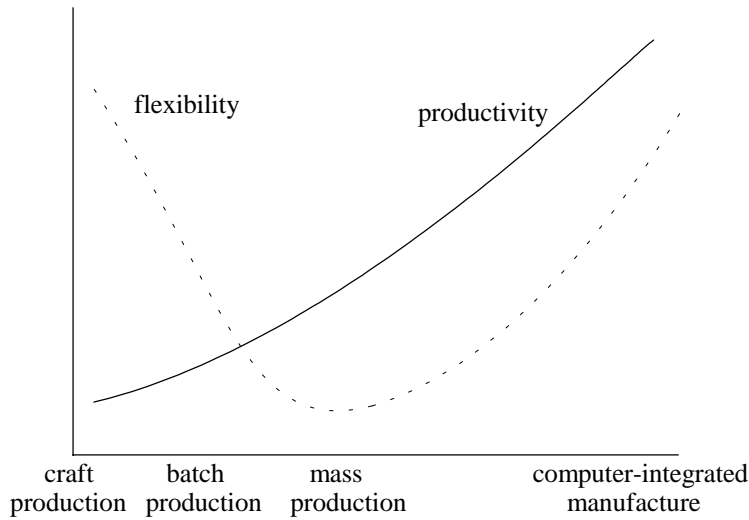
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**D5.** Discuss why some people welcome the production of genetically modified crops and foods but other people are against it. [9]

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**Option E – Computer aided design and manufacturing**

**E1.** The graph below shows the relationship between productivity and flexibility of manufacturing in a range of production systems.



(a) State the production process that has the best combination of flexibility and productivity. [1]

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(b) Suggest **one** reason why for both mass production and batch production flexibility is on the decrease and productivity is on the increase. [2]

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(c) Explain **one** reason why computer-integrated manufacturing is much more flexible than mass production. [2]

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**E2.** Outline **one** impact of CAD/CAM on the workforce in a factory. [2]

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**E3.** Describe **one** disadvantage of the use of optical fibres in a communications system. [2]

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**E4.** Define *fuzzy logic*. [2]

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**E5.** Explain how robots and automated guided vehicles contribute to an automated production system. [9]

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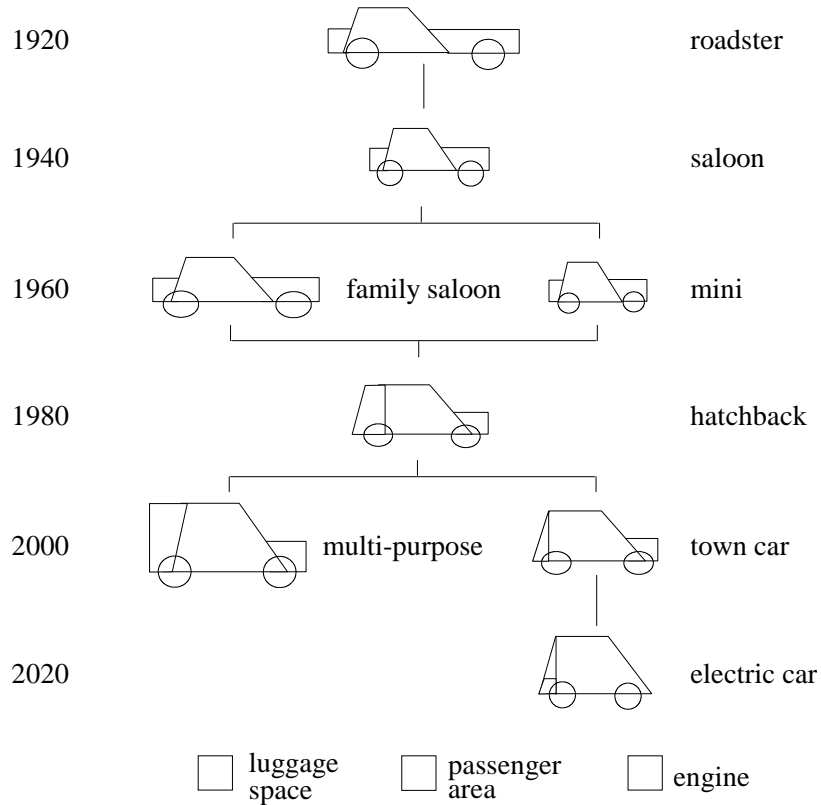
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**Option F – Invention, innovation and design**

**F1.** The figure represents a technique of evolutionary forecasting which looks at the broad historical development of a product in relation to major patterns of change (not small details).



Source: Open University

(a) State the pattern of change for engine size of cars between 1920 and 2020. [1]

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(b) Outline **one** reason why manufacturers developed different sized cars from 1960 onwards. [2]

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(c) Suggest **three** reasons why electric cars may develop from the town car by the year 2020. [3]

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**F2.** State **three** advantages of a telephone system based on digital signals rather than analogue signals. [3]

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**F3.** Explain the difference between a technophile and a technophobe when broadly classifying people's reactions to technological change. [2]

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**F4.** Discuss the success of the training shoe as an innovation in relation to changes in technology and lifestyle. [9]

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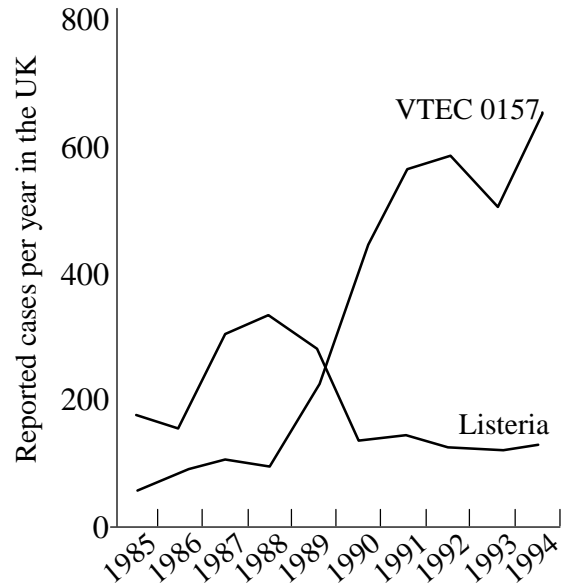
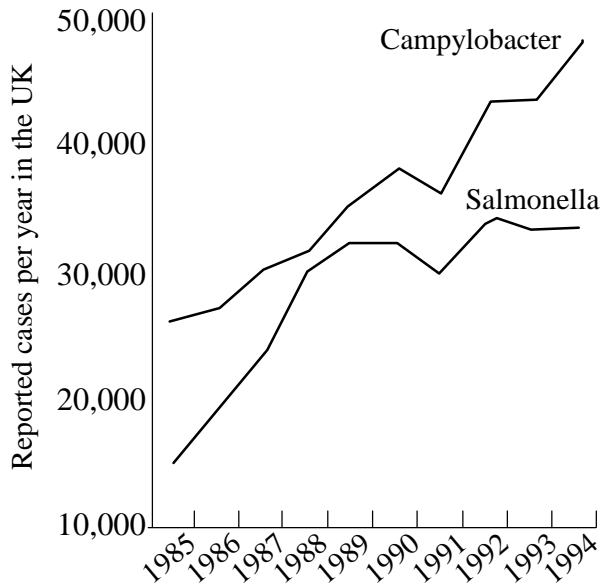
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**Option G – Health by design**

**G1.** The two graphs represent changing patterns of four types of food poisoning in a developed country.



(a) State the year of the highest number of *Listeria* cases. [1]

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(b) Outline why it is not feasible to use one graph to present the data. [1]

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(c) Explain what is unusual about the pattern for *Listeria*. [2]

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(d) VTEC is a type of *Escherichia coli* bacteria contracted from undercooked meat products. Suggest a change in lifestyle which might account for the pattern on the graph. [2]

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**G2.** Define *tomography*. [1]

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**G3.** Describe the difference between cosmetic and plastic surgery. [2]

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**G4.** Describe the influence of planned obsolescence on the design of contact lenses. [2]

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**G5.** With reference to **two** named examples of sources of radiation, discuss the risk to the health of people and how the risk can be minimised. [9]

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