

## CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Subsidiary and Advanced Level

### MARK SCHEME for the May/June 2015 series

# 9691 COMPUTING

9691/11

Paper 1 (Written Paper), maximum raw mark 75

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1 (a) Any **two** from: [2]

- install software and hardware
- transfer of files to new system
- training of the staff/workers
- production of documentation
- NE – remove the old software

(b) (i) **parallel** [3]

- both the old system and new system are run together
- two sets of workers needed to run both systems together

**pilot**

- new system is run in one warehouse of the company
- once the new system is shown to be OK, it is rolled out to rest of company
- Reject – parts of the system

Must give answers from both methods

(ii) **parallel** [2]

- if new system fails there is still the old system as backup
- possible to train work force on new system while old system still running
- compare old and new systems to ensure new system is working correctly.

**pilot**

- if old system fails, only one warehouse affected
- training can be developed in “pilot” warehouse for rest of company

Not training as both examples

(c) 1 mark for description, 1 mark for suitable example [6]

**corrective**

- solve any bugs/problems in the software not discovered at testing
- Example: user reports a problem

**adaptive**

- alter the solution to take into account changes brought about by external/internal Influences
- Example: new laws, new legislation, etc.

**perfective**

- alter the solution to improve the overall performance
- Example: faster response time required

2 (a) 1 mark for first 3 stacks correct. 1 mark for last 2 stacks correct. [2]

		<b>3</b>		<b>5</b>
	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>
<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

Allow answer where they start from the top down

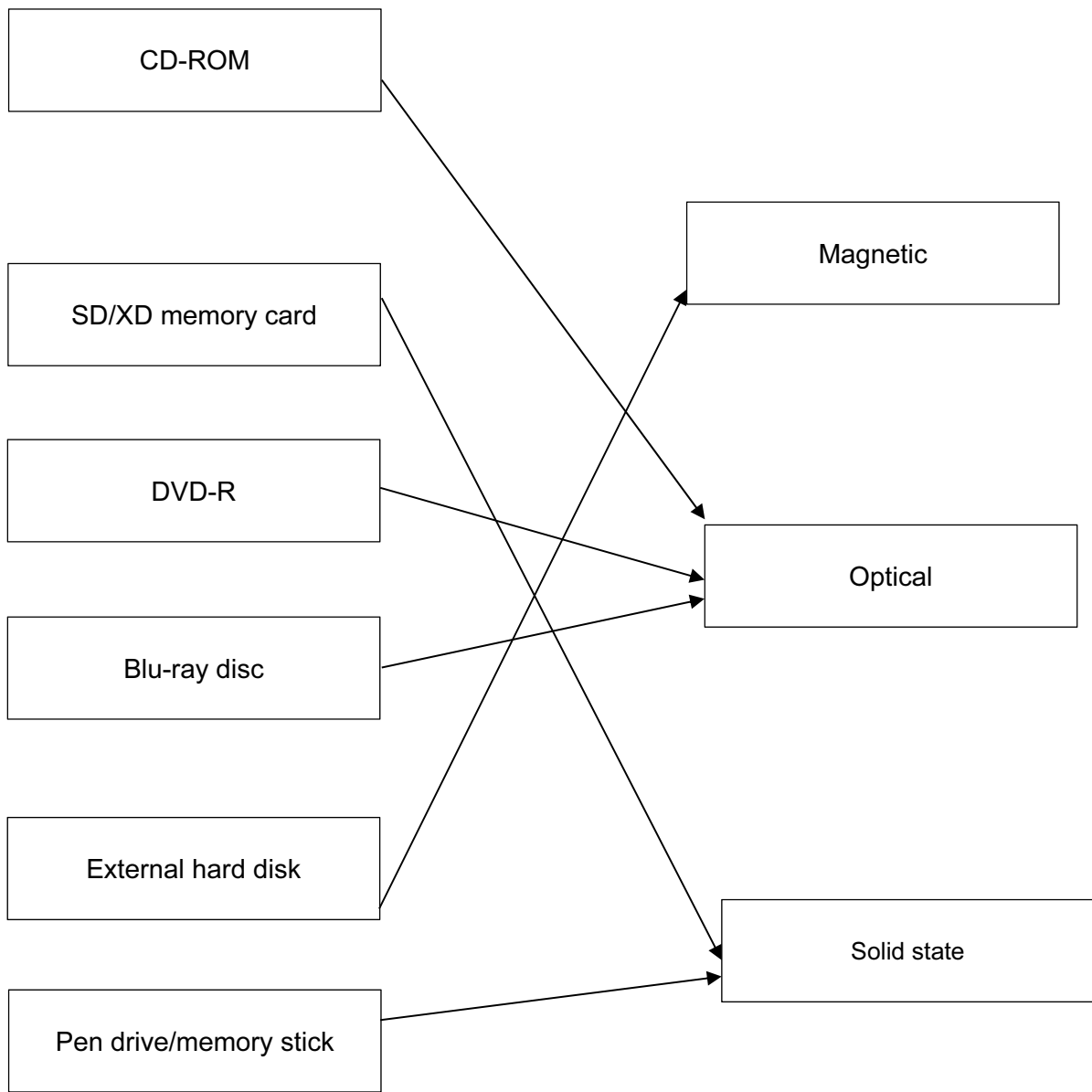
(b) 1 mark for first 3 queues correct. 1 mark for last 2 queues correct. [2]

<b>4</b>					
<b>4</b>	<b>8</b>				
<b>4</b>	<b>8</b>	<b>3</b>			
	<b>8</b>	<b>3</b>			
	<b>8</b>	<b>3</b>	<b>5</b>		

Allow answer that start from the right hand side

3 (a)

[6]



1 mark for each correct connector.

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**(b) (i)** 1 mark for name + 2 marks for justification **[4]**

- ROM
- need to store fixed data/programs
- need to store the “start up” data/programs when model aeroplane first switched on
- need to store factory settings
- solid state memory / RAM
- need to allow user to store own manoeuvres
- need a memory to store key data such as remote control frequencies
- need a memory with no moving parts/robust

**(ii)** 1 mark for name + 2 marks for justification **[3]**

- GUI
- can be used on a touch screen / key pad
- need a simple interface with icons to choose options
- need a limited number of options
- need a robust device
- touch screen/key pad limits the possible options

NE easy to use

4 Deduct 1 mark per incorrect sequence number [5]

description	sequence number
The new stock level is written back to the item record	5
The barcode on the item is read at the POS terminal	(1)
When the item record is found, information is sent back to the POS	3
If the stock level $\leq$ re-order level, items are automatically ordered	7
The database is searched using the barcode as the key field	2
The stock level is reduced by 1	4
The stock level is compared to the re-order level	6

5 (a) – use of different colours/flashing colours on graphic [1]  
 – show graphic pointing in different directions for incoming/outgoing flights

(b) (i) – shows the updated values/graphic/data list [1]  
 // update the display with latest values

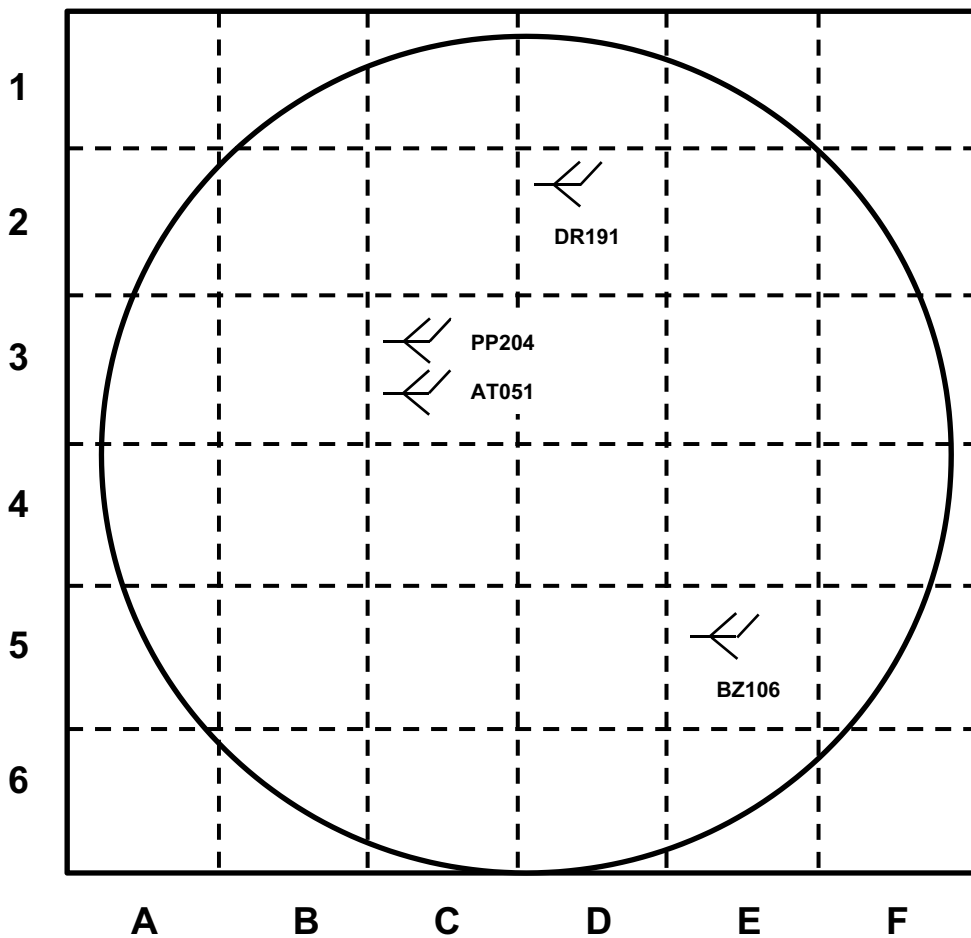
(ii) Any **one** from: [1]

the system is dynamic/always changing/plane always moving  
 height and distance constantly changing  
 latest info needed for safety reasons/flight programs

(c) Any **two** from: [4]

Feature	Explanation
– screens need to be very large	– large volumes of data to show
– screens need to be high definition	– to make all images sharp/clear
– screens should be LCD/LED	– to reduce heat/flicker which can induce stress

- (d) (i) 1 mark if flight number only shown [2]  
 1 mark for correct 3 flight numbers.



Allow items in grid C3 in either order

- (ii) – when mouse/finger hovers over graphic, hotspot displays other data items [1]  
 – click on the plane icon  
 – touch screen with finger  
 – in a pop up window

6 (a) 1 mark per pair of output values (shown as shaded areas in the table) [4]

	B	C	Workspace	X
0	0	0		0
0	0	1		1
0	1	0		0
0	1	1		1
1	0	0		0
1	0	1		1
1	1	0		0
1	1	1		0

(b) (i) 120 [1]

(ii) [1]

7	6	5	4	3	2	1	0
0	0	1	0	1	0	1	1

(c) (i) – transmission can take place in both directions BUT only one direction at a time [2]  
 – data sent a bit at a time along a single wire/channel  
 – bits sent sequentially

(ii) – set of rules agreed before data transmission starts [2]  
 – so that the transmission is correctly received  
 // agreed baud rate/parity/duplex or simplex/serial or parallel/synchronous  
 – so that hardware from different sources is compatible



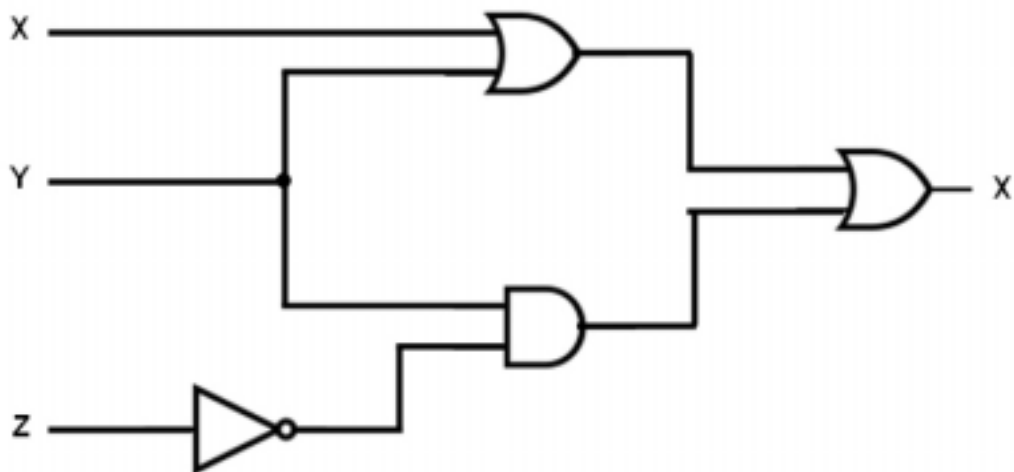
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(d) (i) byte 7 [1]

(ii) bit position 2 [1]

(iii) – position of error is known [2]  
 – in a binary system only 0 or 1 is possible  
 // if it was a 1 it will be a 0, if it was a 0 it will be a 1  
 – receiving software can identify and correct error

(e) 1 mark per correct logic gate [4]



7 (a) (i) all three validation checks must be different [3]

**date of birth**

validation check: format check, presence check, type/character check, range check

**credit card number**

validation check: length check, presence check, check digit, type check

**telephone number**

validation check: presence check, length check, type/character check

can be in any order

(ii) – verification [3]

– **email address / postal address**

– can contain any characters/can be any length/can be a wide variety of formats/impossible to validate

(iii) – date of birth [2]

– limited number of days/months/years

– other options (credit card number and telephone number are infinite)

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(b) 1 mark for naming software + 1 mark for reason for choice [4]

- **spreadsheet**
  - can produce graphs/charts to show numerical/statistical data
  
- **word processor**
  - input the text for use on the webpage
  
- **presentation software**
  - importing videos/music/animation/voice overs .... into web page
  
- **web-authoring software**
  - allows the creation of hypertext documents
  
- **databases**
  - allows storage of information pertaining to all products for sale
  
- **photo editing software**
  - to trim/copy/re-colour an image