

**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

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Page 2	Mark Scheme	System Paper
	Cambridge International AS/A Level – May/June 2015	969

1 (a) Any **two** from:

- 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

Page 3	Mark Scheme	Syllabus Paper
	Cambridge International AS/A Level – May/June 2015	969

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

		3		5
	8	8	8	8
4	4	4	4	4

Allow answer where they start from the top down

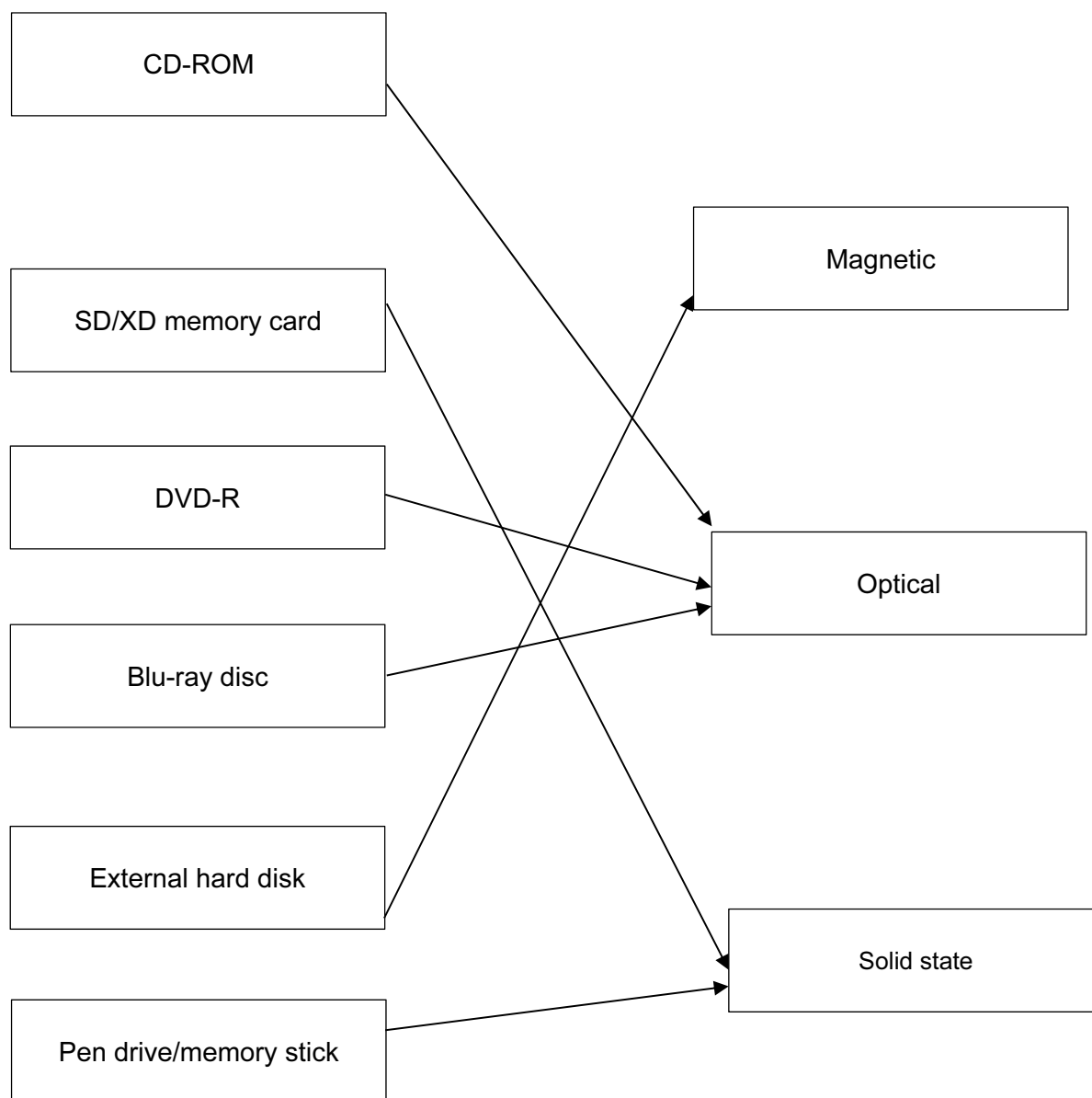
- (b) 1 mark for first 3 queues correct. 1 mark for last 2 queues correct.

[2]

4					
4	8				
4	8	3			
	8	3			
	8	3	5		

Allow answer that start from the right hand side

3 (a)



1 mark for each correct connector.

Page 5	Mark Scheme	Syllabus Paper
	Cambridge International AS/A Level – May/June 2015	969

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

- 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

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]

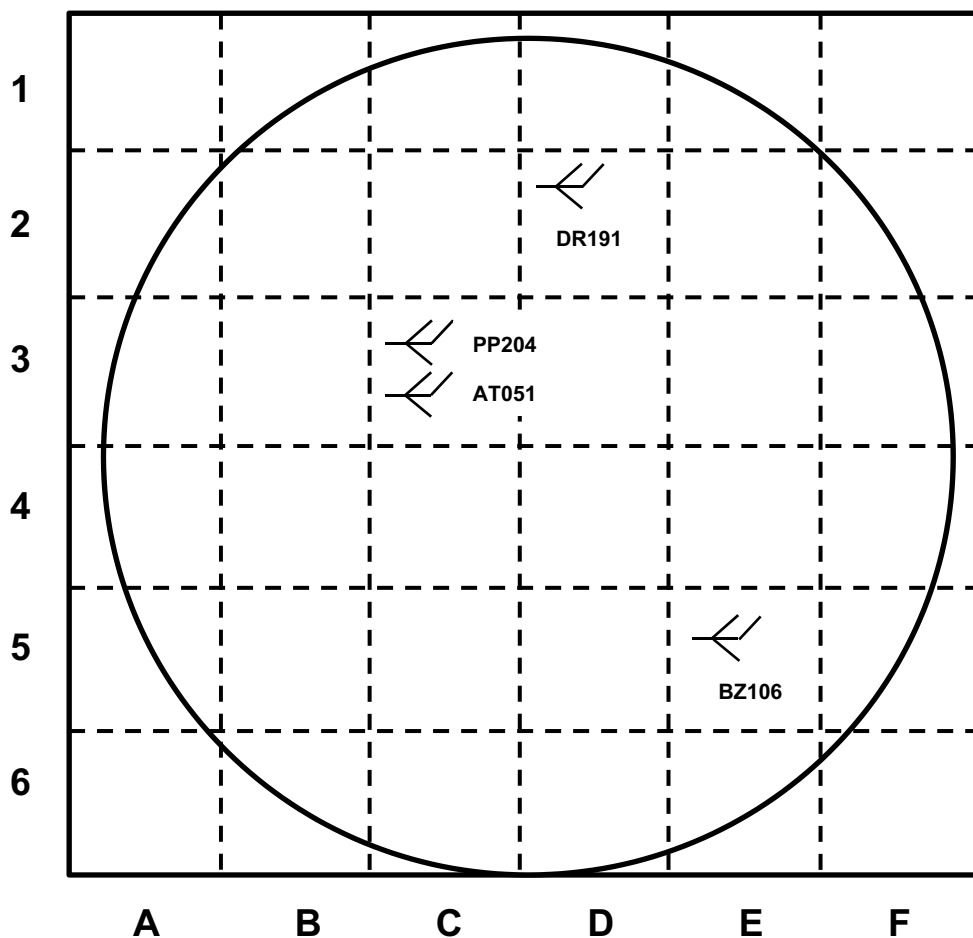
the system is dynamic/always changing/plane always moving  
 height and distance constantly changing  
 latest info needed for safety reasons/flight programs

(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

Page 7	Mark Scheme	Syllabus Paper
	Cambridge International AS/A Level – May/June 2015	969

- (d) (i) 1 mark if flight number only shown  
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  
– click on the plane icon  
– touch screen with finger  
– in a pop up window

[1]

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

	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



(d) (i) byte 7

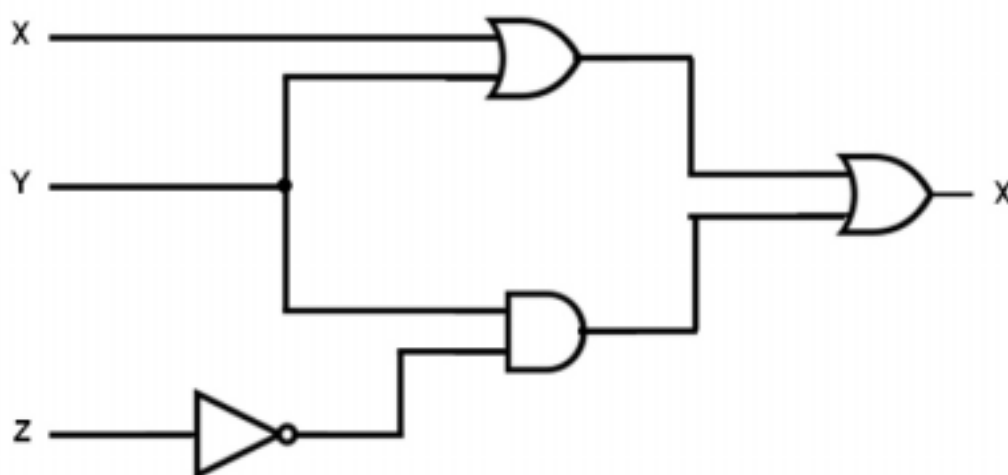
(ii) bit position 2

- (iii) – position of error is known  
 – 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

[2]

(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)

Page 10	Mark Scheme	Syllabus Paper
	Cambridge International AS/A Level – May/June 2015	969

(b) 1 mark for naming software + 1 mark for reason for choice

- **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