

## Sample Exam 3, 2016: Solutions and Teacher Notes

### SECTION A – Multiple choice questions

#### Question 1

Answer: D

#### Question 2

Answer: A

*'A' is a product of an information system – not a component.*

#### Question 3

Answer: B

*While a wired network will also have TCP/IP installed, the most likely protocol in use will be Ethernet. The question does not specify the type of traffic.*

#### Question 4

Answer: A

*Simple definition.*

#### Question 5

Answer: D

#### Question 6

Answer: D

#### Question 7

Answer: B

*1 byte has a maximum number of 255 – plus 0, makes 256 different numbers.*

#### Question 8

Answer: D

#### Question 9

Answer: D

*Response 'C' and 'D' are close, however, a budget is difficult to work out without an understanding of what is required.*

#### Question 10

Answer: A

#### Question 11

Answer: D

**Question 12**

Answer: A

**Question 13**

Answer: C

**Question 14**

Answer: A

**Question 15**

Answer: D

**Question 16**

Answer: B

**Question 17**

Answer: B

**Question 18**

Answer: C

**Question 19**

Answer: D

**Question 20**

Answer: A

**SECTION B – Short-answer questions****Question 1**

Answer: Boolean

*Definition of a variable type.*

**Question 2**

Efficiency is a measure of how well a task is done while effectiveness is a measure of how correctly it is done.

*Efficiency and effectiveness are mentioned frequently in the study design and feature in the exam. Often it will not be in a question as simply as this one. It is important to use them in your answers but at the same time ensure that you use them in context and explain why. For example, stating that a new system is efficient will not earn you any marks, but stating that a new system will increase efficiency but reducing processing time, will.*

**Question 3**

- a. 23
- b. 4
- c. 999
- d. 499,500

**Question 4**

- a. annotated diagram or a mock up
- b. software developer
- c. design
- d. 1: have a clear idea of what the solution will look like and how it will be laid out  
2: can be used to show the client and gain feedback on the design

**Question 5**

- a. 51
- b. 49
- c. 50
- d. The line that checks to see if “Sample > 50” should be changed to read “Sample >=50”

**Question 6**

A function is a subroutine that returns a value. A method is a subroutine that is associated with a specific object.

**Question 7**

Disadvantage 1: A full backup takes longer to perform than an incremental backup (discounting the first day).

Disadvantage 2: If the server fails the day before the full backup is due to take place, then potentially 6 days of data could be lost (as opposed to a maximum of 1 day for an incremental backup).

**SECTION C – Case Study****Question 1**

Question 1: Would they use such a system?

Question 2: What features would they like to see included?

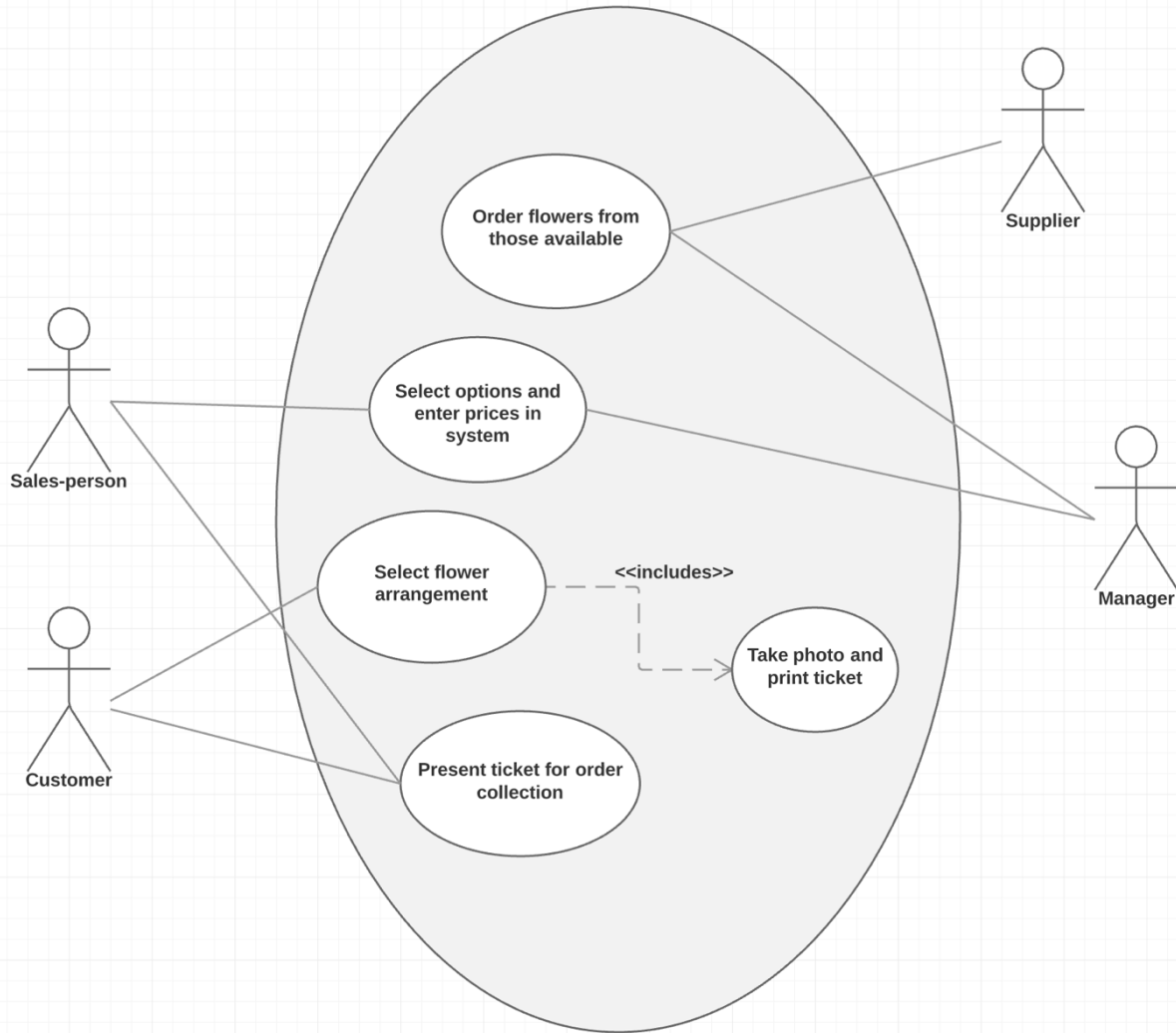
Question 3: Together with the photos, what other information would they be interested in seeing beside each flower arrangement?

Question 4: Have they used a similar system before and if so, what has been their key criticisms of it?

**Question 2**

<b>Category</b>	<b>Constraints</b>
Social factors	1: The display needs to be clear and easy to use for a wide range of groups in the community. 2: The solution needs to be highly efficient in regards to time as people are used to approaching the counter and will be resistant to using the system as a first point of contact.
Legal requirements	1: Keenan does not want to lose the idea to <i>CodeWizardz</i> (or any of his competitors). 2: Images and content displayed needs to be royalty free or purchased for use.
Compatibility	1: The solution will need to be compatible with the existing network at <i>Allen Flowers</i> . 2: The solution will need to pass information to an existing software solution called 'Flower-O'.

### Question 3



### Question 4

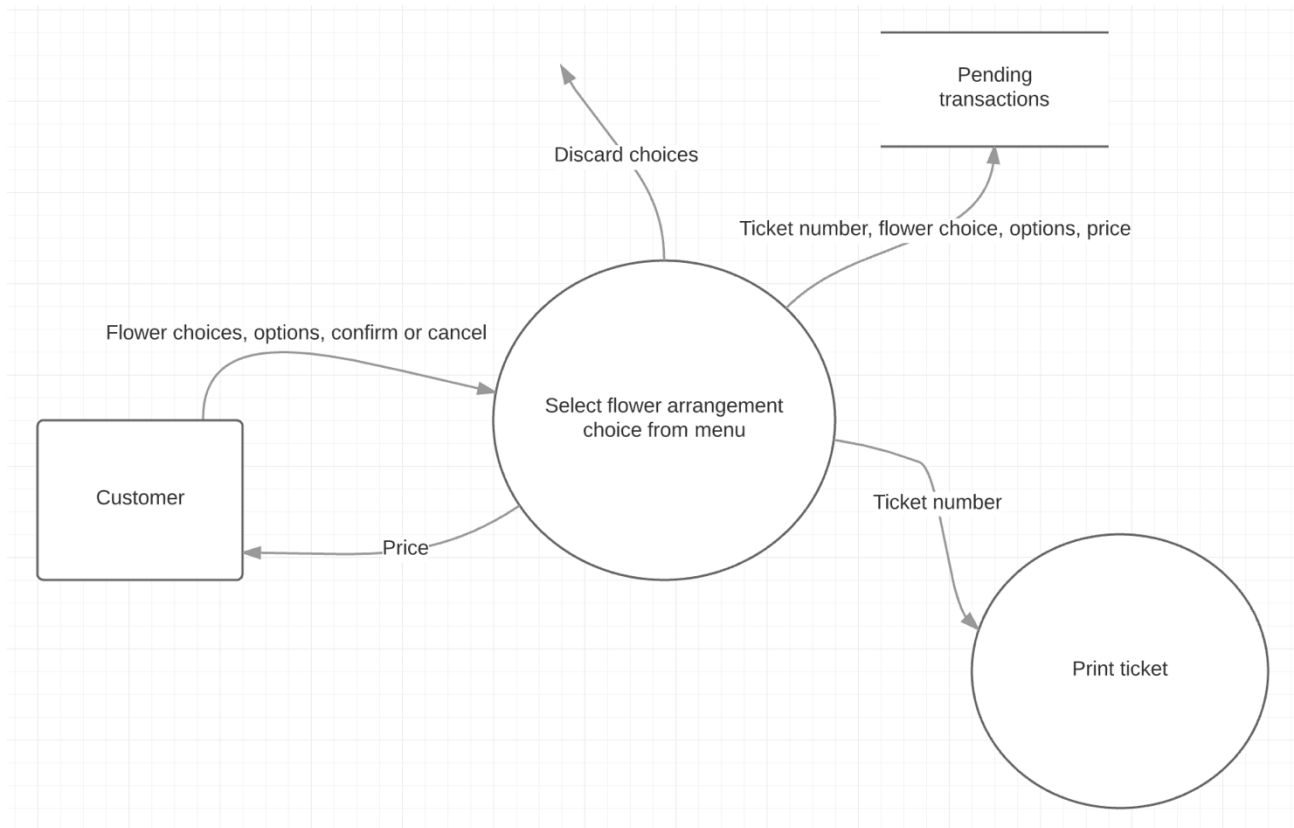
- a. Valentine's Day (launch)
- b. 1: Test the software solution  
2: Train staff to use the software solution  
3: Evaluation the software solution

*These responses are very broad and also a bit generic. It would probably be better to write more specific and detailed responses for this question. In section C in particular, you should always link your answer to the case study by referencing elements of it (placing it in context).*

*Better responses might be:*

- 1: Test the connection with the network at Allen Flowers.*
- 2: Test that the software solution can transfer data to Flower-O in the correct format.*
- 3: Evaluate how well the software solution displays the flower arrangements on the screen.*

### Question 5



### Question 6

**a.**

Concern 1

Although there are pictures, it is hard to tell what flowers are represented in each option.

Correction 1

Have the name of the flower or the arrangement underneath the picture.

Concern 2

The scroll bar on the side shows that there are more options further down the page, but this is not obvious.

Correction 2

Make the scroll bar larger or include an arrow at the bottom of the page.

(and no – the concern is not that there is a turtle as one of the options!)

Another valid concern could be that the price is not listed under each option (so the customer would have to select an arrangement to find out what the price is).

**b.** A responsive design is one that gives feedback to the user in regards to their progress. It could be achieved in this case by including some text that says “Step 1 of 3” or by having a progress bar at the bottom of the page.

**Question 7**

- a. HashFunction: Converts the item that has been selected into a hash value.  
 Remove: Removes the item that corresponds to the hash value, from the hash table.  
 RetrieveNext: Finds the next closest item to the one with the supplied hash value, from the hash table.

**b.**

Error 1: Items are removed from the hash table but don't seem to be recorded anywhere.

Correction: Prior to items being removed from the hash table, they need to be stored temporarily somewhere so that their details can be printed on the ticket for the sales-person.

Error 2: The person is asked if they would like to choose "this arrangement" instead, but are not told which arrangement it is.

Correction: Display the details of the arrangement for the user.

*Another possible error is that the user is only given one chance to select an alternative, where lots of alternatives may exist. However, this is probably more of an oversight than an error.*

**Question 8**

A selection sort is fine to use in this instance as the amount of data being sorted is very small. Helaine certainly could use a quick sort, but the time to implement this versus the gains would probably not make it worthwhile.

**Question 9**

Scenario 1:

User does not select any arrangement, but prints a ticket

Scenario 2:

User selects an arrangement and adds as many extras to it as they can

Scenario 3:

User selects multiple arrangements and prints a ticket

Scenario 4:

User selects multiple arrangements and extras, but cancels the transaction

*There are many possible answers to this question. As long as you are able to respond with realistic scenario, then you will get the marks.*

**Question 10**

- a. Were you able to make your selection/s quickly and easily?  
 b. Did you have any difficulty selecting the arrangements and extras that you wanted to purchase?

*Another example of an efficiency and effectiveness question. There are a few different ways that you could answer this question. The examiners are looking for evidence that you understand the difference between these terms in the context of the case study.*

**Question 11**

- a. Development

*The question mentions that they are performing testing, which is an activity that is listed under Development in the PSM.*

- b. Design > Solution design. The reason why the project would need to be moved back to this point, is that the addition of what has been suggested, will have a major impact on the UI as well as the flow of the software for the customer.

**Question 12**

- a. Assign an extra person to the project team and task them with solving this problem (or give this to a team member that can take on the extra work)  
Have them contact the makers of *Flower-O* and explain the problem / situation to them  
Integrate the changes required per the advice received

*A strategy is almost always best answered by supplying a list of tasks and a timeline (if applicable).*

- b. Maintain a close relationship with the makers of *Flower-O* (if possible). Disable automatic updates of *Flower-O*.

**Question 13**

Accidental: Data is deleted from the *Allen Flowers* network

Event-based: Power outage renders the touch screen (and software solution) inoperable.

Deliberate: Damage done to the touch screen panel (scratched or glass broken)

**Question 14**

- Wait until software solution has been in operation for 3 months
- Interview customers as they leave the store and ask them what they think about using the new system
- Observe customers using the system at different times of the day (when it is busy, quiet, etc) – and monitor how people are using it and how efficiently / easily they can do so.
- Examine log of complaints or technical issues that have occurred.
- Compare number of sales using the new software solution to the same period of time in the previous year.

*Again, a strategy should involve a timeline of steps that can be carried out. With a question such as this, it can also be good to write the answer using dot points – so that is a clearer to the examiner that you have the same (or more) points than the number of marks allocated to the question.*

**Question 15**

- a. Yes, Myles is correct. *Allen Flowers* needs to ask for the permission of customers before it takes their photo. Doing so without their permission is a breach of the Privacy Act.
- b. To prevent this happening in the future, there are a couple of options. They could remove the ‘feature’ entirely. They could also display a message on the screen asking for the permission of the customer and changing the code so that if they refuse to give their permission, the solution doesn’t take their photo.