

AQA Computer Science A-Level
4.2.2 Queues
Past Paper Questions

June 2011 Comp 3

6 A computer simulation is to be used to imitate the flow of students through a school canteen. The simulation will be based on a model developed by the school's canteen manager and a Computing student.

6 (b) (ii) Teachers are able to bypass the students in the queue by walking past them. However, a teacher may not always go directly to the very front of the queue as it may contain teachers already. In which case, the teacher joins the queue at the point just behind the other teachers.

What type of queue would the Computing student use to represent this situation?

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(1 mark)

June 2013 Comp 3

- 8 An interactive operating system maintains a list of the processes that are currently waiting to execute (run). The processes are stored in order of the priority that is associated with their execution. This priority can be set as "High", "Normal" or "Low".

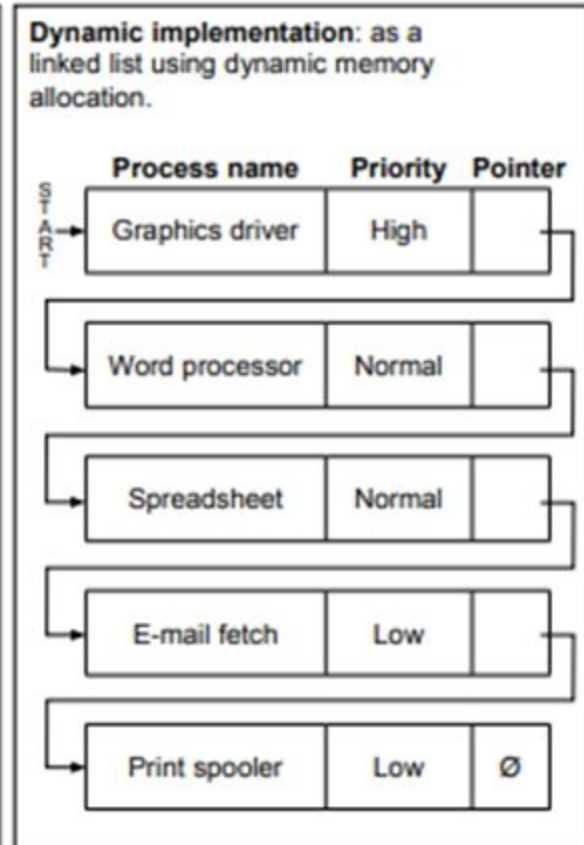
Figure 10 and Figure 11 below show two different ways in which the storage of the process list could be implemented.

Figure 10

Static implementation: as an ordered list using a fixed size array.

Index	Process name	Priority
[1]	Graphics driver	High
[2]	Word processor	Normal
[3]	Spreadsheet	Normal
[4]	E-mail fetch	Low
[5]	Print spooler	Low
⋮		
[100]		

Figure 11



The process at the start of the list will be run next. In Figure 10 and Figure 11, this is the "Graphics driver" process.

When a new process is initiated it is inserted into the list immediately after the last process of the same priority. A "Computer game" process with "High" priority would be inserted into the list in Figure 10 and Figure 11 between the "Graphics driver" and "Word processor" processes.

When a process is completed it is deleted from the list.

8 (c) At a higher level of abstraction, the process list maintained by the operating system could be viewed as a type of queue.

What type of queue?

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(1 mark)