1. A bank uses magnetic tapes to update their customer account data at the end of each day. New data is stored on a Transaction File (TF) and this is combined with the Master File (MF) to produce a New Master File (NMF).

The data is stored in account order and part of the TF and MF are shown below:

MF:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 6 | 8 | 9 | 11 | 12 |

TF:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 4 | 5 | 7 | 8 | 10 | 13 | 14 |

* 1. Show how the data is stored on the merged NMF and indicate which file (TF or MF) the data came from.

NMF:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |  |

TF or MF?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 3 |  |  | 6 |  |  | 9 |  | 11 | 12 |  |  |  |

* 1. Indicate which of the following is the largest memory size by ticking (**✓**) the appropriate box on the fight.

|  |  |
| --- | --- |
| 1GB |  |
| 1KB |  |
| 1TB | **✓** |
| 1MB |  |

1. Storage media can be classified as magnetic, optical or solid state. Six types of storage media are shown in the table. Tick (**✓**) the appropriate column in the table to indicate the type of media used in each case.

|  |  |  |  |
| --- | --- | --- | --- |
| **Storage device** | **Magnetic** | **Optical** | **Solid state** |
| Hard disk | **✓** |  |  |
| Flash memory card |  |  | **✓** |
| Blu-ray disk |  | **✓** |  |
| CD-ROM |  | **✓** |  |
| Memory stick |  |  | **✓** |
| DVD-RAM |  | **✓** |  |

[6 marks]

1. Describe the main difference between Blu-ray discs and DVDs.

* A standard single-layer DVD has a storage capacity of 4.7 GB (enough to store

a two-hour standard definition movie).

* A single-layer Blu-ray disc has a storage capacity of 27 GB (enough to store a

two-hour high definition movie or 13 hours of standard definition movies).

* A dual-layer Blu-ray disc has a storage capacity of 50 GB (enough to store 4.5

hours of high definition movies or 20 hours of standard definition movies).

* Blu-ray devices allow greater interactivity than DVD devices.

**Blu-ray, it is possible to:**

record high definition television programmes

skip quickly to any part of the disc

create playlists of recorded movies and television programmes

edit or re-order programmes recorded on the disc

automatically search for empty space on the disc to avoid over-recording

access websites and download subtitles and other interesting features.

[4 marks]

1. 1. Discuss the main advantages of using SSD rather than HDD in laptop computers.

* they are more reliable (no moving parts to go wrong)
* they are considerably lighter (which makes them suitable for laptops)
* they do not have to ‘get up to speed’ before they work properly
* they have a lower power consumption
* they run much cooler than HDDs (both these points again make them very suitable for laptop computers)
* because of no moving parts, they are very thin
* SSD data access time is only 0.1 milliseconds compared to 10 milliseconds for HDD
* data transfer speed for SSDs is also much faster than for HDDs.

[4 marks]

1. Place each of the following storage and memory devices into their correct category:

|  |  |  |
| --- | --- | --- |
| **Primary** | **Secondary** | **Off-line** |
| RAM | Blu-ray disc | Flash memory/memory stick |
| ROM | Fixed hard disk drive (HDD) | Removable hard disk drive (HDD) |
| DVD-RAM | Fixed solid state drive (SSD) |  |

[6 marks]

1. Indicate which type of access each of the following storage media use by ticking (**✓**) the appropriate box.

|  |  |  |
| --- | --- | --- |
| **Media** | **Serial** | **Direct** |
| Magnetic tape | **✓** |  |
| Magnetic disk |  | **✓** |
| CD-RW | **✓** |  |

[3 marks]