COMPUTER ORGANIZATION & ARCHITECTURE-UCT302

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QUESTION1: Write a quotation for a laptop.

Answer1:

**General Information**

Laptop Type: Standard Laptop

Brand: HP

**Laptop Display**

Screen Resolution: 1920 x 1080 - FHD

Display Type: Full HD

Cache Memory: 8 MB

Screen Size (Diagonal): 39.6 cm (15.6 inch)

**Laptop Hardware**

Graphics Card – Brand Nvidia

Hard Drive: 512 GB

Memory (RAM): 16 GB

Graphics Card - Sub-Brand: GeForce

Processor: 4.20 GHz (Turbo Frequency) Quad Core Intel Core i5-1135G7 11th Gen P

Storage Type: SSD

Expandable Memory: 16 GB

Memory Details: 16 GB (2 x 8 GB)

Backlit Keyboard: Yes

**Processor Related**

Processor Brand: Intel

Processor Core: Quad-core

Processor Speed: Turbo Frequency: 4.2 GHz

Processor Model Number: 1135G7

Speaker Type: Dual Speakers

Core Type: Core i5

OS: Windows10

Question 2: Differentiate between Ryzen and Intel processor.

Answer2:

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| RYZEN PROCESSOR  (AMD) | INTEL PROCESSOR |
| Ryzen is an e.g of AMD which stands for Advanced Micro Devices. It was invented by Jerry Sanders, Jack Gifford, John Carey. | Intel stands for “**Int**egrated **El**ectronics”. It was invented by Robert Noyce. |
| Less efficient than Intel. | More efficient. |
| they often run cooler and longer on battery, due to smaller lithography (TSMC 7nm is similar to Intel 10 nm) | Can heat up when used with Clock Speed Boost (14 nm) |
| It has symmetric multiprocessing capabilities of up to 8 sockets/128 cores. | It has symmetric multiprocessing capabilities of up to 4 sockets/28 cores. |
| Less expensive than Intel at a higher range. | Less expensive than AMD Processor at the lower range. |
| Clock speed reaches and surpassed 5.0 GHz | The clock speed can reach 5.0 GHz but results in more heat |
| Example – AMD Ryzen, AMD Thread-ripper, AMD FX-Series, AMD EPYC, AMD Opteron, AMD Athlon 64 | Example – Intel Xeon, Intel Core i series, Intel Core m series |

Question 3: Differentiate between basic computer and latest computer.

Answer3:

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| Basic computer | Modern computer |
| It has 9 registers. (PC, AR, DR, AC, IR, TR, OUTR, INPR, SC) | Most modern CPU's have between 16 and 64 General Purpose Registers |
| There was no such provision of multi core processors until late 2000’s. | It has multi core processors, for the division of tasks and efficient performance. |
| The earlier version of computer used Magnetic core memory. | Modern computers use the semiconductor memory. |
| Older computers had IPC counts as low as 0.1 | modern processors IPC easily reach near 1. |
| Basic Computers or Old Computers used von Neumann architecture | Modern Computers use a mixture of Modified Harvard and Von Neumann Architecture, effectively gaining various performance and security benefits. |

Question 4: Differentiate between HDD and SDD.

Answer 4:

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| SSD | HDD |
| SSDs stands for Solid state drive. In an SSD, all data is stored in integrated circuits. | An HDD is a data storage device that lives inside the computer. It has spinning disks inside where data is stored magnetically. |
| It uses less power and result in longer battery life because data access is much faster and the device is idle more often. | With their spinning disks, HDDs require more power when they start up than SSDs. |
| These are more reliable than HDDs, which again is a function of having no moving parts. | With an HDD, performance slows significantly. |
| SSD are more expensive comparatively. | They are lower in cost and are practical for data that does not need to be accessed frequently, |
| SSD does not produce noise. | HDD can produce noise due to mechanical movements. |
| In SSD the data transfer is random access. | In HDD the data transfer is sequential. |