1) Differences between the general purpose computer and embedded system?

Sol:

| General purpose Computer | Embedded System |
|---|---|
| 1) Multipurpose | 1) Single functioned |
| 2) It is a combination of generic hardware and general purpose operating system. | 2) It is a combination of special purpose hardware and embedded operating system. |
| 3) Applications are afferable | 3) Applications are not afferable [can't change] |
| 4) It contains operating system. | 4) It may (or) may not contain operating System. |
| 5) Need not be deterministic [i/p change, o/p doesn't change] | 5) It is deterministic behaviour [i/p change, o/p change] |
| 6) It depends on performance | 6) It depends on performance, power requirements and memory usage. |
| 7) Response requirements are not time critical | 7) Highly time critical |
| | 8) It is a computer system with a dedicated function within a larger system. |

2) What are device drivers?

Sol: A device driver is a special kind of software program that controls a specific hardware device attached to a computer.

→ Device drivers are the software libraries that initialize the hardware and manage

access to the hardware by higher layers of software

3) How can hardware understand the code that we write in embedded systems?

Sol:)

=> Hardware understands code through the use of a specific type of software called an operating system.

=> The operating system acts an intermediary between the hardware and the code, translating the code into instructions that the hardware can unstand and excute.

=> These instructions are typically in the form of machine code, which is series of binary digits

4) How a .c files are converted into .exe files?

Sol:)

=> C files first go through the pre-processor, then compiler complies it into assembles & creates object file (main.o) then linker link the main.o with required header objects & libraries and creates a exicutable file (program.exe)

f) Differences between RTOS and GPOS ?

(011)

## RTOS :

⇒ RTS ⇒ Real Time operating system.

⇒ It guarantees RTA with specific deadline

⇒ It has higher reliability

⇒ It is designed for real-time applications where tasks must be excuted within specific time constraints.

⇒ It provides deterministic behaviour.

⇒ It generally simpler in design and functionality, focusing on real-time responsiveness and predictability.

⇒ It typically employs fixed time slot Schedulling algorithms to ensure that high priority tasks are excuted promptly.

## GPOS :

⇒ It has less reliability.

⇒ It is designed for general purpose computing and multitasking, prioritizing fairness and resource sharing among various applications and processes.

⇒ It offers non-deterministic behaviour.

⇒ It utilizes dynamic schedulling algorithms priority based schedulling to distribute CPU time fairly among multiple tasks.

⇒ It generally more complex in design with wide range of features and services to support various general purpose computin