Week 6 Embedded system design

1. Processor using a single supply voltage V completes a task T just at its deadline , then V is the unique supply voltage that maximizes power consumption of T
   a. True
   b. False

Ans – b. False
Explanation – According to lemma given by Ishihara and Yasuura. Processor using a single supply voltage V completes a task T just at its deadline , then V is the unique supply voltage that minimizes power consumption of T.

2. Considering tighter time constraints, Energy Consumption
   a. Increases
   b. Decreases
   c. Remains Same
   d. Cannot be predicted

Ans – a. Increases
Explanation – If the time constraint is tight more energy is consumed because we need to push more cycles at higher voltage which leads to increased energy consumption

3. Power consumption depend(s) on
   a. Voltage
   b. Switching
   c. Load Capacitance
   d. All of the above

Ans – d. All of the above
Explanation – Power consumption depends on Supply Voltage, Lower Capacitance and Switching (of bits)

4. Decision in voltage scheduling in Static Voltage Scheduling is carried out
   a. At Runtime
   b. At Compile time
   c. Dynamically
   d. None of the Above

Ans – b. At Compile time
Explanation – The Voltage scheduling in Static Scheduling algorithm is taken at compile time, where deadline of each task is known and linear Programming problem is formulated and thus voltage levels are scheduled.

5.

Accessing registers uses less power than accessing primary memory

a. True
b. False

Ans - True
Explanation - Accessing registers consumes less power than accessing primary memory, that's why various measures are taken to reduce access to primary memory.

6.

In VLIW (Very Long Instruction Word) four independent instructions are clubbed together to form an Instruction word, the task of finding out Independent Instruction is carried out by

a. Programmer
b. Operating System
c. Compiler
d. Assembler

Ans- c. Compiler
Explanation- the four independent instructions clubbed together in VLIW (Very Long Instruction Word) is performed by the compiler.

7.

In EPIC (Explicitly Parallel Instruction Code) Architecture which bit position is used to encode the end of parallel execution?

a. MSB (Most Significant Bit)
b. LSB (Leas Significant Bit)

Ans – b. LSB (Least Significant Bit)
Explanation – as In EPIC (Explicitly Parallel Instruction Code) Architecture LSB (Least Significant Bit) bit position is used to encode the end of parallel execution.

8.

How many bit instructions are used in thumb mode of operation in ARM

a. 8
b. 10
c. 16
d. 32

Ans – c. 16
Explanation – In Thumb Mode operation processor works with 16bit instructions whereas in normally in expanded mode ARM can work with 32 bit instructions.

9.

Dictionary approach to attain code efficiency is based on the use of some kind of dictionary that contains parts of input sequence that frequently appears.

a. True
b. False

Ans – a. True
Explanation – Dictionary approach or two level control store approach helps in attaining code efficiency which is based on the use of dictionary that contains parts of input sequence that frequently appears.

10.

The factors achieved in VLIW (Very Long Instruction Word) is/are

a. Reduces the number of accesses to memory
b. Increases Parallelism
c. Pushing some overhead to compiler
d. None of the above

Ans – a. Reduces the number of accesses to memory, b. Increases Parallelism, c. Pushing some overhead to compiler

Explanation - VLIW reduces the total number of accesses to memory for fetching instructions, increases parallelism and pushes overhead to compiler for clubbing together four independent instructions.