SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : HSCD (16EC5508) **Branch & Specialization**: ECE & ES

Year & Sem: I-M.Tech & I-Sem

UNIT –I

CO-DESIGN ISSUES & CO-SYNTHESIS ALGORITHMS

1. a) Which block diagram explains a generic co-design methodology? [5M]
   (b) Write different languages used in co-design. [5M]
2. (a)What are the different types of co-design models & architectures? [5M]
   (b)What are the different types of languages and architectures? [5M]
3. (a) What is meant by software co-design? Explain the co-design models. [5M]
   (b) List the different blocks in VLIW architecture and explain. . [5M]
4. (a) What is meant by co-synthesis? Describe the distribution system co-synthesis. [5M]
   b) Discuss about RISC and CISC architectures. [5M]
5. (a) Explain FSMD architecture in detail. [5M]
   (b) Explain about finite state machine. . [5M]
6. (a) Discuss about Distributed system co-synthesis. [5M]
   (b) Explain about Hardware-software partitioning. [5M]
7. a) What are the prototyping and emulation techniques? Discuss them briefly. [5M]
   (b) Discuss the architecture for control dominated systems. [5M]
8. (a) Explain about hardware – software partitioning. [5M]
   (b) Discuss about performance analysis in distributed system co synthesis. [5M]
9. (a) Discuss the future developments in emulation and prototyping. [5M]
   (b) Write a note on component specialization techniques. [5M]
10. (a) Write the importance of hardware-software partitioning. Explain its performance estimation. [5M]
    (b) Explain Vulcan methodology in hardware-software partitioning. [5M]

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UNIT-II

PROTOTYPING AND EMULATION & TARGET ARCHITECTURE

1. (a) Write a short note on system communication infrastructure.	[5M]
(b) What are the architecture specialization techniques of emulation and prototyping?	[5M]
2. (a) Explain in detail about prototyping and emulation techniques.	[5M]
(b) Discuss about prototyping and emulation environments.	[5M]
3. What is meant by emulation technique? Explain it with an example.	[10M]
4. (a) Analyze zycad paradigm RP & XP.	[5M]
(b) List different future developments in emulation.	[5M]
5. Write short note on a) Component specialization technique.	[5M]
b) System specialization techniques.	[5M]
6. (a) Explain the following: (i) Target architecture. (ii) Application system classes.	[5M]
(b) What are mixed systems? Explain it with an example.	[5M]
7. (a) Explain the architecture of control dominated system.	[5M]
(b) Discuss about mixed system.	[5M]
8. (a) Discuss about the architecture for data dominated systems.	[5M]
(b). what are the different architecture specialization techniques? Explain in detail.	[5M]
9. Describe the architecture for ADSP21060, TMS320C60 data dominated systems.	[10M]
10. (a) Write in detail about need for software development for embedded architecture.	[5M]
(b) Explain about the requirements of modern embedded system.	[5M]

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UNIT –III

COMPILATON TECHNIQUES AND TOOLS FOR EMBEDDED PROCESSOR

1. (a) With neat diagram explain the modern embedded system. [5M]
   (b) Write the advantages of modern embedded systems. [5M]
2. (a) What are the different compilation techniques? Explain in detail. [5M]
   (b) What are the special features of modern embedded architecture? [5M]
3. What is a compiler development environment? Explain it with a suitable circuit. [10M]
4. (a) Explain the co-design computational model. [5M]
   (b) Distinguish between design specialization and verification. [5M]
5. a) What are the embedded software development needs? [5M]
   (b) What are the tools required for embedded processor architecture? [5M]
6. (a) Describe the problems occurred when adapting traditional compilation model to embedded Processor. [5M]
   (b) Discuss about MMDSP processor. [5M]
7. (a) Explain principal set of design tools for embedded processor system. [5M]
   (b) List the practical considerations in a compiler development environment. [5M]
8. (a) What is the need for embedded software development? [5M]
   (b) Write a short note on compilation techniques. [5M]
9. Write short note on modern embedded architectures.
   a) Architectures in multimedia. [5M]
   b) Wireless communications. [5M]
10. Write about practical considerations in a compiler development environment.
    a) Source level debugging. [5M]
    b) Compiler validation. [5M]

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UNIT-IV

DESIGN SPECIFICATION AND VERIFICATION

1. (a) Explain the concurrency coordinating concurrent computations. [5M]
   (b) What are the different verification tools? Explain about the interface verification. [5M]
2. (a) What is meant by interface verification? [5M]
   (b) Explain about any one of the verification tools. [5M]
3. Explain any two system level specification languages with a suitable example. [10M]
4. (a) What are the system level specifications? [5M]
   (b) Discuss about design representation for system level synthesis. [5M]
5. (a) Describe the following concepts: (i) Design verification. (ii) Implement verification. [5M]
   (b) Differentiate design and co-design. [5M]
6. (a) Write short notes on interfacing component. [5M]
   (b) What is meant by coordinating concurrent computations? Explain. [5M]
7. Explain about design verification and implementation verification. [10M]
8. (a) Explain co-design computational model. [5M]
   (b) Discuss in detail about design verification co-design. [5M]
9. (a) What is meant by co-design? Explain the co-design computational model. [5M]
   (b) How is design verification carried out? [5M]
10. Explain about concurrency in design specifications and verification.
    a) Non determinism. [5M]
    b) Synchronous and asynchronous computations. [5M]

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UNIT-V

LANGUAGES FOR SYSTEM LEVEL SPECIFICATION AND DESIGN –I & II

1. (a) Explain the design representation for system level synthesis. [5M]
   (b) Discuss the system level specification languages. [5M]
2. (a) Discuss the multi-language co-simulation lycos system. [5M]
   (b) What are the different heterogeneous specifications? [5M]
3. What is meant by a) cosyma systems and [5M]
   b) lycos system explain in detail? [5M]
4. (a) What is meant by design specification? Discuss about co-design. [5M]
   (b). Write short notes on Compilation technologies. [5M]
5. (a) What are the difficulties with the design of heterogeneous hardware/software systems? [5M]
   (b) Explain about ESMD representation. [5M]
6. (a) What are the system level specifications? [5M]
   (b) Discuss about design representation for system level synthesis. [5M]
7. (a) Discuss the multi-language co-simulation 'The Cosyma System'. [5M]
   (b) Explain homogeneous system level specification in detail. [5M]
8. (a) What are the new trends in COSMA system? [5M]
   (b) Discuss how design representation for system level synthesis is done. [5M]
9. (a) List out the features of multi-language co-simulation. [5M]
   (b) What do you mean by 'Hardware – Software Partitioning'? Explain. [5M]
10. Discuss about the need for synthesis and explain about system level synthesis for design representation. [10M]

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