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

QUESTION BANK (DESCRIPTIVE)

Subject with Code : HSCD (19EC4111) **Branch & Specialization**: ECE & ES

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

UNIT –I

CO-DESIGN ISSUES & CO-SYNTHESIS ALGORITHMS

1. a) Which block diagram explains a generic co-design methodology? [CO1][L2][5M]
   (b) Write different languages used in co-design. [CO1][L2][5M]
2. (a)What are the different types of co-design models & architectures? [CO1][L1][5M]
   (b)What are the different types of languages and architectures? [CO1][L1][5M]
3. (a) What is meant by software co-design? Explain the co-design models. [CO1][L1][5M]
   (b) List the different blocks in VLIW architecture and explain. . [CO1][L4][5M]
4. (a) What is meant by co-synthesis? Describe the distribution system co-synthesis. [CO1][L2][5M]
   b) Discuss about RISC and CISC architectures. [CO1][L2][5M]
5. (a) Explain FSMD architecture in detail. [CO1][L2][5M]
   (b) Explain about finite state machine. . [CO1][L2][5M]
6. (a) Discuss about Distributed system co-synthesis. [CO1][L4][5M]
   (b) Explain about Hardware-software partitioning. [CO1][L1][5M]
7. a) What are the prototyping and emulation techniques? Discuss them briefly. [CO1][L1][5M]
   (b) Discuss the architecture for control dominated systems. [CO1][L4][5M]
8. (a) Explain about hardware – software partitioning. [CO1][L2][5M]
   (b) Discuss about performance analysis in distributed system co synthesis. [CO1][L4][5M]
9. (a) Discuss the future developments in emulation and prototyping. [CO1][L2][5M]
   (b) Write a note on component specialization techniques. [CO1][L2][5M]
10. (a) Write the importance of hardware-software partitioning. Explain its performance estimation. [CO1][L1][5M]
    (b) Explain Vulcan methodology in hardware-software partitioning. [CO1][L2][5M]

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UNIT-II

PROTOTYPING AND EMULATION

1. (a) Write a short note on system communication infrastructure. [CO2][L2][5M]
   (b) What are the architecture specialization techniques of emulation and prototyping.[CO1][L2][5M]
2. (a) Explain in detail about prototyping and emulation techniques. [CO2][L2][5M]
   (b) Discuss about prototyping and emulation environments. [CO2][L4][5M]
3. What is meant by emulation technique? Explain it with an example. [CO2][L2][10M]
4. (a) Analyze zycad paradigm RP & XP. [CO2][L2][5M]
   (b) List different future developments in emulation. [CO2][L1][5M]
5. (a) What is a weaver prototyping environment. [CO2][L1][5M]
   (b) write about quick turn emulation system. [CO2][L2][5M]
6. Briefly explain about future developments in emulation and prototyping. [CO2][L2][10M]
7. (a) what is Aptix prototyping system. [CO2][L1][5M]
   (b) what is zycard paradigm. [CO2][L1][5M]
8. what are the different prototyping and emulation environments? Explain any one.[CO2][L2][10M]
9. write briefly about target architecture in future developments in emulation. [CO2][L2][10M]
10. Explain about (a) mentor simexpress emulation system. [CO2][L2][5M]
    (b) Aptix prototyping system. [CO2][L2][5M]

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UNIT –III

TARGET ARCHITECTURE

1. Write short note on a) Component specialization technique. [CO3][L2][5M]
   b) System specialization techniques. [CO3][L2][5M]
2. (a) Explain the following: (i) Target architecture. (ii) Application system classes.[CO3][L1][5M]
   (b) What are mixed systems? Explain it with an example. [CO3][L1][5M]
3. (a) Explain the architecture of control dominated system. [CO3][L2][5M]
   (b) Discuss about mixed system. [CO3][L4][5M]
4. (a) Discuss about the architecture for data dominated systems. [CO3][L4][5M]
   (b). what are the different architecture specialization techniques? Explain in detail.[CO3][L2][5M]
5. Describe the architecture for ADSP21060, TMS320C60 data dominated systems.[CO3][L4][10M]
6. (a) Write in detail about need for software development for embedded architecture.[CO3][L2][5M]
   (b) Explain about the requirements of modern embedded system. [CO3][L2][5M]
7. Briefly discuss about System communication infrastructure. [CO3][L1][10M]
8. Explain about (a) mixed systems [CO3][L2][5M]
   (b) Less specialized systems [CO3][L2][5M]
9. (a) Discuss about memory architectures. [CO3][L4][5M]
   (b) What are the selected co design problems. [CO3][L2][5M]
10. write short note on 8051 -an 8 bit micro controller. [CO3][L2][10M]

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

UNIT-IV

COMPILATON TECHNIQUES AND TOOLS FOR EMBEDDED PROCESSOR & DESIGN SPECIFICATION AND VERIFICATION

1. (a) With neat diagram explain the modern embedded system. [CO4][L2][5M]
   (b) Write the advantages of modern embedded systems. [CO4][L1][5M]
2. (a) What are the different compilation techniques? Explain in detail. [CO4][L2][5M]
   (b) What are the special features of modern embedded architecture? [CO4][L2][5M]
3. What is a compiler development environment? Explain it with a suitable circuit. [CO4][L1][10M]
4. (a) What is the need for embedded software development? [CO4][L2][5M]
   (b) Write a short note on compilation techniques. [CO4][L2][5M]
5. a) What are the embedded software development needs? [CO4][L1][5M]
   (b) What are the tools required for embedded processor architecture? [CO4][L1][5M]
6. (a) Write short notes on interfacing component. [CO4][L2][5M]
   (b) What is meant by coordinating concurrent computations? Explain. [CO4][L2][5M]
7. Explain about design verification and implementation verification. [CO4][L2][10M]

8. (a) Explain co-design computational model. [CO4][L2][5M]
   (b) Discuss in detail about design verification co-design. [CO4][L4][5M]
9. (a) What is meant by co-design? Explain the co-design computational model. [CO4][L2][5M]
   (b) How is design verification carried out? [CO4][L2][5M]
10. Explain about concurrency in design specifications and verification.
    a) Non determinism. [CO4][L2][5M]
    b) Synchronous and asynchronous computations. [CO4][L2][5M]

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

UNIT-V

LANGUAGES FOR SYSTEM LEVEL SPECIFICATION AND DESIGN –I & II

1. (a) Explain the design representation for system level synthesis. [CO5][L2][5M]
   (b) Discuss the system level specification languages. [CO5][L2][5M]
2. (a) Discuss the multi-language co-simulation lycos system. [CO5][L2][5M]
   (b) What are the different heterogeneous specifications? [CO5][L2][5M]
3. What is meant by a) cosyma systems and [CO5][L1][5M]
   b) lycos system explain in detail? [CO5][L2][5M]
4. (a) What is meant by design specification? Discuss about co-design. [CO5][L2][5M]
   (b). Write short notes on Compilation technologies. [CO5][L1][5M]
5. (a) What are the difficulties with the design of heterogeneous hardware/software systems? [CO5][L2][5M]
   (b) Explain about ESMD representation. [CO5][L2][5M]
6. (a) What are the system level specifications? [CO5][L1][5M]
   (b) Discuss about design representation for system level synthesis. [CO5][L2][5M]
7. (a) Discuss the multi-language co-simulation 'The Cosyma System'. [CO5][L4][5M]
   (b) Explain homogeneous system level specification in detail. [CO5][L2][5M]
8. (a) What are the new trends in COSMA system? [CO5][L2][5M]
   (b) Discuss how design representation for system level synthesis is done. [CO5][L2][5M]
9. (a) List out the features of multi-language co-simulation. [CO5][L1][5M]
   (b) What do you mean by 'Hardware – Software Partitioning'? Explain. [CO5][L2][5M]
10. Discuss about the need for synthesis and explain about system level synthesis for design representation. [CO5][L4][10M]

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