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OCT-NOV 2025 WINTER EXAMINATION**1154 B.Tech. CBCS****Sub. Name: Advanced Computer Architecture****Sub. Code: 67541/83856/83990****Day and Date: Saturday ,13-12-2025****Total Marks: 70****Time: 02:30 PM To 05:00 PM**

- Instructions:**
- 1. All questions are compulsory**
 - 2. Assume suitable data wherever necessary and mention it boldly**
 - 3. Draw neat labelled diagrams wherever necessary**
 - 4. Figures to the right indicate full marks**

- Q1)** Solve any two of the following questions. **[14]**
- a.** Explain how to evaluate the cost of an Integrated Circuit. **[7]**
 - b.** Explain the functional structure of SIMD array processor. **[7]**
 - c.** List and explain the parallel processing mechanisms in uniprocessor computers. **[7]**
- Q2)** Solve any two of the following questions. **[14]**
- a.** Explain Handler's classification of pipeline processor according to levels of processing. **[7]**
 - b.** Draw and explain S-access memory organization. **[7]**
 - c.** Illustrate three classes of data-dependent hazards according to various data update patterns. **[7]**
- Q3)** Solve any two of the following questions. **[14]**
- a.** List and explain six basic cache optimizations in details. **[7]**
 - b.** Explain the three special vector instructions with example:
i) Compare ii) Compress iii) Merge **[7]**
 - c.** What is Vector Operand? Explain the classification of vector instructions into four primitive types with example. **[7]**
- Q4)** Solve any two of the following questions. **[14]**
- a.** State the three types of pipelined vector processing methods and explain **[7]**

the horizontal vector processing method with example.

- b.** What are the Associative memories ? Why they are called as content addressable? [7]
- c.** Define and explain masking and data routing mechanisms. [7]

Q5) Solve any two of the following questions. [14]

- a.** Explain the components of Processing Element (PE) in SIMD computer. [7]
- b.** Explain the two snooping coherence protocols. [7]
- c.** With a neat diagram explain NVIDIA GPU memory architecture. [7]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (101) Bachelor of Engineering (83990) Advanced Computer Architecture Part 4 SEM 7
- 2] (101) Bachelor of Engineering (67541) Advanced Computer Architecture Part 4 SEM 7
- 3] (1154) B.Tech. CBCS (83856) Advanced Computer Architecture Part 4 SEM 7