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M.Sc. (IT) Ist SEMESTER EXAMINATION, 2019

Paper – I

Computer Architecture

Time: Three Hours

Maximum Marks: 80

PART – A *(खण्ड – अ)*   [Marks: 20]

Answer all questions (50 words each).

All questions carry equal marks.

सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न का उत्तर 50 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

PART – B *(खण्ड – ब)*   [Marks: 40]

Answer five questions (250 words each).

Selecting one from each unit. All questions carry equal marks.

प्रत्येक इकाई से **एक–एक** प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए।

प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

PART – C *(खण्ड – स)*   [Marks: 20]

Answer any two questions (300 words each).

All questions carry equal marks.

कोई **दो प्रश्न** कीजिए। प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

PART – A

Q.1 (i)   What is data representation?

(ii)   Define Instruction sets.

(iii)   Define Sequential ALUs.

(iv)   Define fixed point division with example.

(v)   What is CPU control unit?

(vi)   What is super scalar processing?

(vii)   Define memory device characteristics.

(viii) Define serial access memories.

(ix)   Name the method of synchronising the processor with the I/O device.

(x)   What is I/O processor?

PART – B

UNIT –I

Q.2 Define CPU organization in detail.

Q.3 What is instruction format? Discuss the various instruction formats?

UNIT –II

Q.4 Explain the difference between fixed point and floating point arithmetic.

Q.5 Explain combinational ALUs in detail.

UNIT –III

Q.6 Differentiate between micro programming and hard wired control unit in detail.

Q.7 Write short notes on –

(a)   Instruction pipeline

(b)   Multiplier control unit

UNIT –IV

Q.8 Explain what do you understand by random access memories in detail.

Q.9 Explain the role of the cache memory hierarchy to speed up instruction execution time.

UNIT –V

Q.10 Compare and contrast interrupt driven I/O, DMA and programmed I/O.

Q.11 Explain what is parallel processing and give its advantages.

PART – C

Q.12 Write short notes on –

    (a)   Programming considerations

    (b)   Floating point numbers and their utility

Q.13 Explain addition and subtraction in fixed point arithmetic with the help of an example.

Q.14 Explain in detail the working of a micro-programmed control unit.

Q.15 Explain address translation and memory allocation in detail.

Q.16 Write short notes on –

    (a)   Multiprocessors

    (b)   Programmed I/O