S.Y. B. SC. (Computer Science) SEM –III (CBCS - 2016 COURSE) :
SUMMER - 2019
SUBJECT: DIGITAL SYSTEMS & MICROPROCESSORS

Day: Wednesday
Date: 08/05/2019
S-2019-1092
Time: 03.00 PM TO 06.00 PM
Max. Marks: 60

N.B:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw diagrams **WHEREVER** necessary
4) Use of **CALCULATOR** and log table is allowed

Q.1 Answer any **TWO** of the following: **(12)**

a) What is DMA transfer? Explain DMA transfer with block diagram.
b) With necessary diagram explain dual slope ADC.
c) What is virtual memory? Explain paging system in virtual memory.

Q.2 Answer any **TWO** of the following: **(12)**

a) Draw and explain the block diagram of UART.
b) State different addressing modes for microprocessor.
c) Explain 4-bit R-2R ladder digital to analog convertor with necessary diagrams. Give expression for its output voltage.

Q.3 Answer any **TWO** of the following: **(12)**

a) Explain: address bus, data bus and control bus.
b) Write a short note on stack organization.
c) What is cache memory? How does it enhance system performance.

Q.4 Answer any **THREE** of the following: **(12)**

a) Explain the following parameters for ADC:
i) Linearity ii) Resolution
iii) Accuracy iv) Quantization error
b) Explain the general register organization of microprocessors.
c) With necessary diagram explain the 4-level memory hierarchy.
d) Explain mathematical instructions with examples.

Q.5 Answer any **FOUR** of the following: **(12)**

a) Define the following terms for memory :
i) Access time ii) Speed iii) Capacity
b) Draw well labeled block diagram of PPI.
c) State the concept of RISC and CISC.
d) Explain interrupt initiated data transfer.
e) Explain the following instructions :
i) MOV ii) XCHG iii) PUSH
f) Explain the instruction format.
g) Draw flag register for Pentium.

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