

2 1/2 Hours) [Total Marks: 75]

- N.B: (1) ~All questions are compulsory.  
(2) Figures to the right indicate full marks.  
(3) Illustrations, in-depth answers and diagrams will be appreciated. =| |  
(4) Mixing of sub-questions is not allowed.

Q.1 Attempt All (Each of 5 marks) (15M)

A) Multiple Choice Questions (5M)

- i) In decimal number system basis\_\_\_\_. |  
a) 8 b) 2 c) 10 d) 16 |  
| ii) RISC stands for .  
a) Reduced instruction set computer.  
b) Reduced instruction set component.  
c) Reference instruction set computer.  
d) Reduced in set computer. -  
iii) If one of the input to an OR gate is high its output will be. 5  
a) Medium b) High c) Low \_d) Moderate —  
| iv) A \_ used in microcomputers to temporarily store data being.  
— transmitted to or from a peripheral device. Be  
a) Data register b) MBR c) Index Register da) MDR: a  
v) Assembly is called a. programming language. = © |  
| a) low-level b) high level © +c)binary =. ~— \*d) decimal

B) Fill in the blanks — | (5M)

- ( false ,true, adder ,peripheral devices, half-adder ,mnemonic, memory  
buffer register , memory bus register )  
i) The output of AND gate is only when all:the inputs are true.  
ii) An is a device that can add two binary digits.  
iii) Assembly language uses a \_ to represent each low-level  
machine instruction or opcode. .  
iv) MBR stands for \_\_\_\_\_  
v) Input or output devices that are connected to computer are called

C) — Short. Answers | (5M)

- i) Define fan-in. |  
ii) What is read and write operation?  
iii) Define stack,  
~ iv) Find the equivalent decimal number for octal number 143.  
-v) What are ALU and CU? :

: | Q.2 Attempt the following (Any THREE) (Each of 5 Marks) . (15M)

- a) Design full adder circuit.  
b) Explain the concept of universal gate.  
c) With suitable example explain Octal number system.  
d) Compare multiplexer and De-Multiplexer.  
e)With the help of neat diagram explain Shift Register.  
f) Convert the binary number to decimal number.

i) 100101 ii) 10001110 iii) 10110101

Page 1 of 2 .

Paper / Subject Code: 82101 /Computer Organization & Design. —

Q.3 Attempt the following (Any THREE) (Each of 5 Marks) (15M)

- a) Compare machine language and assembly language.
- b) Explain following assembler directives:-
  - a) INCLUDE b) ELSE c) RESET d) EQU e) ORG.
- c) Explain characteristics of RISC instruction set. - ||
- d) With the help of neat diagram explain hardware implementation of Stack. ;
- e) Explain Big-Endian and Little-Endian Assignments. ee
- f) | What is function call? Explain its use in ISA. | 7

Q.4 Attempt the following (Any THREE) (Each of 5 Marks) (15M) ||

- a) How data movement & manipulation operations performed using Data \_ || Path? \*
- b) List and explain different types of peripheral devices. | 7
- c) What is an interrupt? Give example. || - 7
- d) List and explain with neat diagram main hardware components of == . Processor. I
- e) Explain arithmetic, logic & Load instructions with example.
- | f) Explain Direct Memory Access. | ne /

Q.5 Attempt the following (Any THREE) (Each of 5 Marks) (15M)

- a) Explain NOR, Exclusive OR, Exclusive NOR gate with truth tables. :
- ) b) Convert decimal number 106 to binary & octal form. =,
- c) List and explain different types of Registers, 8 89»
- d) With the help of neat diagram explain Stack frame. -
- e) Explain S-R Flip Flop. ; |

Page 2 of 2 . .