QUESTION BANK

ON

DIGITAL ELECTRONICS AND MICROPROCESSOR

NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE & affiliated to SCTE&VT, Odisha   )

DIGITAL   ELECTRONIC   AND   MICROPROCESSOR

BRANCH –ELECTRICAL & ELECTRONIC ENGINEERING

SEMESTER -5TH

SEASSION - Winter 2022-23

PREPARED BY

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BASICS OF DIGITAL ELECTRONIC

1   Answer the following question .   **(2 marks each)**

A . What is digital electronic ?
B . Define Microprocessor ?
C .How many types of numbers system and what are they ?
D .To convert $(10110010)_2$ to decimal number system ?
E .$(469)_{10}$ To convert binary number ?
F .$(106)_8$ to decimal number system ?
G .$(11001011)_2$ to convert octal number system ?
H . To convert binary number to decimal number system ?
I   .$(1468)_{10}$ to convert Hexadecimal ?
J . $(1B3D)_{16}$ to convert decimal number system ?
K .$(472)_8$ to convert hexadecimal number system ?
L . What is weight code and non weighted code ?
M. Define AND and OR gate with truth table ?
N .Define NOR and NAND gate ?

2 Answer the following question .   **(5 marks each)**

A . Describe all the logic gates with truth table ?

B . Using NAND & NOR gate realize all the logic gate ?

C .Explain about the Universal gate ?

D .Use of Boolean algebra slove this equation ?

> ➢ Y = $\overline{A}BCD$ +AB$\overline{C}$ $\overline{D}$+$\overline{A}$BCD +A$\overline{B}$CD+$\overline{A}$ BCD
> ➢ Y= $\overline{A}$BCD+$\overline{A}$ BCD+ABC$\overline{D}$+A$\overline{B}$ CD+$\overline{A}$BC $\overline{D}$

E . Using K-map slove the Boolean expression ?

Y=(ABCD)= $\sum_m$ (0,1,2,3,4,5,6,7,8,9,10,13,14,15,) and D (6,11)

F . Slove the Boolean expression using K –map ?

Y =(WXYZ)= π M(1,2,3,4,5,7,9,12,13,14,15) & ϕ (6,10,13)

G . Slove the Boolean expression using K –map in SOP method ?

Y =(WXYZ)= $\sum$M(0,2,4,6,8,10,12,13,15) &   d (1,5,7,9)

H . Slove the Boolean expression using K –map in POS method ?

   Y =(ABCD)= πM(2,3,4,5,7,8,9,10,14,15) & ϕ (6,11,12)

I . Slove the Boolean expression using K –map in SOP method ?

   F(ABCD) =$\sum$M(4,5,6,7,8,9,10,11,12,13,14,15)

COMBINATIONAL LOGIC CIRCUIT

1   Answer the following question .   (2 marks each)

   A   In which logic circuit does not have a memory?

   B   In which circuit does not have a feedback path from o/p to i/p ?

   C   Define combinational circuit ?

   D   In which ckt does not have a clock signal ?
   E   State half adder?
   F   Half adder ckt is used to add how many bit number?
   G   What is the o/p sum expression   in half adder ckt?
   H   The o/p of half adder ckt carry is ------- ?

I   State the uses of half adder ?

J   What is used to sum of the full adder ckt ?

K   The full adder ckt is used to add how many bit number?

L   What is the o/p sum expression   in full adder ckt?

M   The o/p of full adder ckt carry is ------- ?

N   Define 4 ×1 multiplexer ?

O   State 1×4 demultiplexer ?

P   Half Substractor has how many i/p and how many o/p line ?

Q   Full Substractor used to substractor how many bit number ?

R   The O/P the of difference in full substractor ?

S   The O/p the of difference in full substractor ?

T   The o/p the of full substractor for borrow ?

2 Answer the following question .   (5 marks each)

A   Difference between the combinational ckt and logical ckt ?
B   Describe about the combinational logic ckt ?
C   Explain half adder ckt & verify its truth table ?
D   Describe the full adder circuit with truth table ?
E   State & Explain about full substractor ?
F   Describe half substractor with truth table ?
G   Explain the operation of 4:1 multiplexer ?
H   Describe the 1×4 demultiplexer with logic gates ?
I   State the working of binary to decimal encoder ?
J   Explain about the two bit magnitude comparator ?
K   Explain the 3×8 decoder with logic gate ?

SEQUENTIAL LOGIC CIRCUIT

1 **Answer the following question .**   **(2 marks each)**

   A) Define sequential logic ckt?

   B) How many types of flip flop in sequential ckt ?

   C) The storage element is used in a sequential ckt is called?

   D)   What is S-R flip flop ?

   E) Define D-flip flop ?

   F)   The o/p of d flip flop is 1 when the i/p of D= ?

   G) The i/p of J&K is behave like what ?

   H) State the application of FLIP FLOP?

   I)   Define modulus of a counter ?

   J) What is synchronous counter ?

   K) Define asynchronous counter ?

   L) What is Triggering ?

   M) Triggering more than on during a clock is called ?

   N) State counter ?

   O)   The full form of SISO ?

   P)   What is SIPO & PISO ?

   Q) WHAT Is down counter ?

   R) SISO register is use for ……….?

   S) What is 4-bit synchronous counter ?

2 **Answer the following question .**   **(5 marks each)**

   A) Explain about the clocked S-R flip flop with logic diagram ?

   B) Describe the operation with truth table of S-R flip flop ?

   C) Explain the T flip flop ?

   D)   Describe about the J-K flip flop with truth table & logic gate ?

   E) Describe about the operation of D -flip flop with truth table & logic gate?

F) Explain about the 4 –bit synchronous and asynchronous counter ?

G) Distinguish between the synchronous and asynchronous counter ?

H) Explain the working of SIPO &PISO register ?

I) Describe the operation of SIPO & PIPO register ?

J) Construct the level clocked J-K flip flop with truth table & logic gate ?

8085 MICROPROCESSOR

1   Answer the following question .   (2 marks each)

A) What is microprocessor ?

B) Define microcomputer ?

C) Microprocessor is made of -------?

D) Which type of operation the microprocessor can perform ?

E) What is the year the first microprocessor was introduced and how many bits ?

F) The ALU stands for ?

G) Which type of operation the ALU perform ?

H) Arithmatic & logical operations means ?

I)   What is addres bus ?

J) Define data bus ?

k) What is the work of IR & ID ?

L) Define flag register ?

M) What is temporary register ?

N) Define stack pointer ?

O) ALE stands for ?

2 Answer the following question .   **(5 marks each)**

A) Distinguish between the microprocessor & microcomputer ?

B) Explain the architecture of 8085 microprocessor with neat and sketch diagram ?

C) Describe the all pin of 8085 microprocessor with neat and sketch diagram ?

D)Describe the stack, stack pointer and stack top ?

E)Explain the various addressing modes of 8085 microprocessor ?

F) Describe the timing diagram of memory read machine cycle ?

G)Explain about the counter and time delay ?

H)Explain the timing diagram of memory write operation ?

I) Explain the timing diagram of opcode fetch machine cycle ?

INTERFACING & SUPPORT CHIPS

1   Answer the following question .   **(2 marks each)**

     A   what is primary memory ?

     B   primary memory is a which type of memory ?

     C   de fine CPU?

     D   RAM satands for ?

     E   ROM stands for ?

     F   primary memory is a computer memory that is accessed directly by the ………… ?

     G   PROM stands for?

     H   EPROM stands for ?

     J   working of logic control is ?

     K   'IS ' STANDS FOR ?

     L   secondary is which types of memory ?

M   Define $\overline{RD}$ & $\overline{WR}$?

N   State data base buffer ?

O EEPROM stands for ?

2 Answer the following question .   (5 marks each)

   A   Describe the functionary block diagram of 8255 i/p with neat & sketch diagram ?

   B   Explain about the seven segment LED display ?

   C Describe the traffic light controller ?

   D Explain about the internal organisation of RAM & ROM?