

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, April/May 2018**

**Course: Digital Eletronics**  
**Program: B.C.A**  
**Time: 03 hrs.**

**Semester: II**

**Max. Marks: 100**

**Instructions: All Question are compulsory and attempt all question in the same order of question paper**

**SECTION A**

S. No.		Marks	CO
Q 1	Convert the following number in binary, Hexadecimal and Octal: 234 & 345	4	CO1
Q 2	What do you understand by Gray Code? Convert the following into gray code: 516 & 178	4	CO1
Q 3	Perform the following binary athematic: 768-845 & 345*267	4	CO1
Q 4	Simplified the following Boolean expression using Boolean theorem: $(A.B)' . (A'+B) . (B'+B)$	4	CO2
Q 5	Convert the following expression into SOP form $AB'C + A'B' + ABC'D$	4	CO2

**SECTION B**

Q 6	A decimal number 45 was shared over a network using hamming code and with even parity. The Receiver got the following code 0011011001, find the error if occurred and on which position and what should be the correct code?	10	CO1
Q 7	What do you understand by Synchronous and Asynchronous counter? Design a mode 10 counter?	10	CO3
Q 8	Illustrate the difference between flip-flop and latches? Design a master slave flipflop?	10	CO3
Q 9	Design a 32:1 De-multiplexer <b>or</b> Design a BCD to 7 segment decoder?	10	CO3

**SECTION-C**

Q 10	Design a Universal Shift Register using RS flipflop? Explain the working of each operation?	20	CO3
Q 11	Write short note for the following 1. Excitation table 2. Race around Condition 3. Indeterminate state <b>Or</b> 4. Chronical Form	6,6,8	CO1,C O3

**Name:**

**Enrolment No:**



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**SECTION A**

S. No.		Marks	CO
Q 1	Convert the following number in binary, Hexadecimal and Octal: 135 & 264	4	CO1
Q 2	What do you understand by Gray Code? Convert the following into gray code: 104 & 239	4	CO1
Q 3	Perform the following binary athematic: 107*78 & 201-546	4	CO1
Q 4	Simplified the following Boolean expression using Boolean theorem: $ABC'D' + ABC'D + AB'C'D + ABCD + AB'CD + ABCD' + AB'CD'$	4	CO2
Q 5	Convert the following into standard POS form $(A+B'+C)(B'+C+D')(A+B'+C'+D)$	4	CO2

**SECTION B**

Q 6	A decimal number 56 was shared over a network using hamming code and with even parity. The Receiver got the following code 0010010000 find the error if occurred and on which position and what should be the correct code?	10	CO1
Q 7	What do you understand by Synchronous and Asynchronous counter? Design a Ripple counter?	10	CO3
Q 8	Design a JK flipflop using NOR gate? State the excitation table for the same	10	CO3
Q 9	Design a 1:16 multiplexer using 1:2 multiplexer <b>or</b> Design an Octal to Binary encoder?	10	CO3

**SECTION-C**

Q 10	What do you understand by Register? Design logic diagram for all four type of Shift Register?	20	CO3
Q 11	Write short note for the following 1. Active Low and Active High 2. Clock Triggering Mechanism 3. $A + A'B = A + B$ <b>Or</b> 4. Number system	6,6,8	CO1,C O3