

INDIAN MARITIME UNIVERSITY
(A Central University, Govt. of India)
End Semester Examinations-Dec./Jan.2019-20
B. Sc (Nautical Science)
Semester IV
Nautical Electronics Paper –IV (UG21T2405)

Date: 18-12-2019
Time: 3 Hrs.

Max.Marks: 70
Pass Marks: 35

Note: Answer any seven of following, all carry equal marks

1. (a) What are called as universal gates? Draw the symbol of universal Gates and explain the operation with truth table. (5)
(b) Draw the logic circuit diagram of full – adder, with necessary equations and truth table. (5)
2. (a) State and explain De-Morgan's Law. (5)
(b) What is Multiplexer? Describe 4: 1 Mux. (5)
3. (a) Write a short note on IC 555 Timer. (5)
(b) Give the Characteristics of IC 555 Timer. (5)
4. (a) Write a short note on A stable Multivibrator. (5)
(b) A 555 Timer is configured to run in a stable mode with $R_A=4\text{ K}\Omega$ and $R_B= 4\text{ K}\Omega$ and $C=0.01\mu\text{F}$. Determine the frequency of output and duty cycle. (5)
5. (a) What is flip flop? Explain the working of RS flip flop. (5)
(b) Write a short note on decade counter. (5)
6. (a) Draw the truth table and timing diagram for D flip flop. (5)
(b) Explain the working of J-K flip flop. (5)
7. (a) Explain in detail with a neat block diagram the working of the internal architecture of microprocessor. (5)
(b) Explain in detail the various bits of a flag register for microprocessor. (5)
8. (a) Define Microcontroller. Enlist the application of microcontroller. (5)
(b) Write an assembly language program for addition of two numbers. (5)
9. (a) What is Demultiplexer? Describe 1:4 Demux. (5)
(b) What is counter? Explain the working of 3-bit ripple counter. (5)

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