S.NO.397 BATCH: 2011 - 2014 Reg. No.

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END OF SEMESTER EXAMINATIONS, NOVEMBER - 2017
ELECTIVE - II:
INSTRUMENTATION AND ADVANCED COMPUTATIONAL PROGRAMMING
SUBJECT CODE: 12UAPH12

MAJOR: B.Sc. (Physics) SEMESTER : VI
TIME : 3 HOURS MAX. MARKS: 75

SECTION – A (10 X 1 = 10)

Answer ALL the Questions:
Choose the best answer:

1. In measurement systems, which of the following static characteristics are desirable
   a) Accuracy b) Reproducibility
   c) Sensitivity d) All the above
2. In the center zero analog voltmeter having a range of $-10V$ to $+10V$, there is a detectable change of the pointer from its zero position on either side of the scale only if the current reaches a values $1V$ (on either side). The voltmeter has a
   a) dead zone of $1V$ b) sensitivity of $1V$
   c) dead zone of $2V$ d) resolution of $1V$
3. In constructional moving system, the requirement of the frictional forces should be.
   a) minimum b) maximum
   c) zero d) infinity
4. Fluid friction damping can be used in
   a) horizontally mounted instruments b) vertically mounted instruments
   c) both a and b d) None of these
5. Which of the following command is used in MATLAB to clear all input and output from the command window display
   a) clc b) clear x c) clear all d) format
6. Which of the following special character is used for the inside brackets to end rows IN MATLAB.
   a) : b) ; c) , d) .
7. A syntax of logical *AND* operation is *(expression1)* XX *(expression2)*, where XX is
   a) == b) != c) || d) &&
8. The value of 40.\30 is
   a) 0.25 b) 0.50 c) 0.75 d) 1.33
9. A *break* statement is used to
   a) Exit the loop b) Exit the window
   c) Exit the programme d) Call subroutine
10. In MATLAB, to add a new graph to the current graph is implemented by _____ function.
    a) add b) plot c) grid d) hold

SECTION – B (5 X 4 = 20)

Answer ALL the Questions:

11. a) Distinguish between the terms Scale range and Scale span with suitable examples.

(OR)

b) Write short notes on (i) Dead Time and (ii) Dead Zone.

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12. a) List the classification of transducers.

(OR)

b) Describe the various operating forces needed for proper operation of an analog indicating instrument.

13. a) Briefly explain the various MATLAB Operators with examples.

(OR)

b) Explain MATLAB functions and provide their syntax with an example.

14. a) What are Arrays? With examples, explain the different types of Arrays that MATLAB can accept.

(OR)

b) Discuss how Complex numbers are represented in MATLAB with examples.

15. a) Write short note on input and output commands in MATLAB with their syntax and examples.

(OR)

b) Highlight the usage of '*If else*' statement with a simple MATLAB program.

SECTION – C (5 X 9 = 45)

Answer ALL the Questions:

16. a) Obtain an expression for the measuring value of electric current by loading effects due to series connected instruments.

(OR)

b) Discuss the dynamic characteristics of the measurement systems.

17. a) Write short notes on (i) Resistive – Pressure Transducer

(ii) Inductive – Pressure Transducer and

(iii) Capacitive – Pressure Transducer.

(OR)

b) Explain the principle, construction and working of linear variable Differential Transducer (LVDT).

18. a) Explain the features of multi-paneled structure of the MATLAB Desktop with neat diagrams and examples.

(OR)

b) Highlight the exhaustive nature of help tool available in MATLAB with examples.

19. a) What are the built-in functions available in MATLAB? Give illustrative examples.

(OR)

b) Define Matrices. Explain the arithmetic operations in matrix and give necessary examples.

20. a) List the 2D graphics available in MATLAB programme. Explain the relevant 2D plots syntax, figure and examples.

(OR)

b) Explain '*for*' and '*while*' loop structures for control flow in MATLAB programming with example programs.

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