

---

**Indian Maritime University**  
**(A Central University, Govt of India)**  
**End Semester Examinations – June 2026**  
**Programme Name: B Tech (ME)**

**Semester: II**

**Subject Code: UG11T5202**

**Subject Name: Introduction to Computers & Python Programming**

---

Date: 03.06.2026

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

---

**General Instructions**

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

**Section A**

(Ten MCQs of 01 Mark each – Choose the correct answer as applicable.)

1. Which of the following is a valid Python identifier
    - a) 123name
    - b) name\_123
    - c) name-123
    - d) @name
  2. Which operator has the highest precedence in Python?
    - a) Addition (+)
    - b) Multiplication (\*)
    - c) Exponentiation (\*\*)
    - d) Division (/)
  3. Which Python structure stores key-value pairs?
    - a) List
    - b) Tuple
    - c) Dictionary
    - d) Set
  4. Which Pandas function is used to read CSV files?
    - a) pd.read\_csv()
    - b) pd.read\_excel()
    - c) pd.read\_table()
    - d) pd.read\_json()
  5. Which NumPy function creates an identity matrix?
    - a) np.array()
    - b) np.eye()
    - c) np.ones()
-

- 
6. Which plot is best suited for showing data distribution?  
a) Line plot  
b) Scatter plot  
c) Histogram  
d) Bar chart
7. Which measure of central tendency is most affected by outliers  
a) Mean  
b) Median  
c) Mode  
d) None
8. A correlation coefficient of -0.85 indicates  
a) Strong positive correlation  
b) Weak positive correlation  
c) Strong negative correlation  
d) No correlation
9. Which keyword is used in Python to handle exceptions?  
a) catch  
b) Try - except  
c) error  
d) None of the above
10. Which library is primarily used for data visualization?  
a) NumPy  
b) Pandas  
c) Matplotlib  
d) Scikit-learn

### **Section B**

(Five Questions of 02 Marks each)

- 11 Define variables and constants in Python with examples.
- 12 Write a Python program to check whether a number is even or odd.
- 13 Differentiate between list and tuple in Python.
- 14 Write Python code to create a Pandas Series from a list of marks.
- 15 Differentiate between positive and negative correlation with examples.

### **Section C**

(Seven Questions of 10 Marks each of which any 05 questions to be answered.)

- 16 a) Explain mutable and immutable data types in Python with one example each.

[5]

---

- 
- b) Write a Python script to calculate the square of a number entered by the user. [5]
- 17 a) Explain conditional & control flow statements in Python with suitable examples. [5]
- b) Explain error handling in Python with an example using try and except. [5]
- 18 a) What are NumPy arrays and Pandas Series? Give one example of each. [5]
- b) Write a Python statement using Pandas to read a CSV file named students.csv and display the first 5 rows. [5]
- 19 a) Write Python code using Matplotlib to create a line plot of the values [2, 4, 6, 8] against their indices. [5]
- b) Explain two methods to handle missing values in a Pandas DataFrame. Give one example of reshaping data. [5]
- 20 a) Write a Python code to calculate the mean, median, and mode for the dataset: [5, 7, 7, 9, 10]. [5]
- b) Explain the difference between correlation and causation with one example. Also, state what a correlation coefficient of  $r = 0.8$  indicates. [5]
- 21 a) Explain different plots in Matplotlib. [5]
- b) Write Python code to draw a line graph. [5]
- 22 a) A dataset contains daily temperatures for a week: [28, 30, 32, 31, 29, 33, 30].
1. Find the mean temperature.
  2. Plot a simple line graph using Matplotlib [5]
- b) As a Marine Engineer, you use a Python script to monitor the vibration levels (in mm/s) of a turbocharger. High dispersion in vibration levels indicates a potential bearing failure. [5]
-

---

The vibration data is: `vibe_data = [2.1, 2.3, 2.2, 2.8, 2.1, 2.4, 2.2]`. Write a Python code snippet using the statistics module to calculate the Variance and Standard Deviation of `vibe_data`.