# Python Programming

1 of 1 sets

**1. What is the output of the following code : print 9//2**

A. 4.5

B. 4.0

C. 4

D. Error

Answer:C

**2. Which function overloads the >> operator?**

A. more()

B. gt()

C. ge()

D. rshift()

Answer:D



**3. What is the output of the following program :**
**i = 0**
**while i < 3:**
**print i**
**print i+1**

A. 0 2 1 3 2 4

B. 0 1 2 3 4 5

C. 0 1 1 2 2 3

D. 1 0 2 4 3 5

Answer:C

**4. Which module in Python supports regular expressions?**

A. re

B. regex

C. pyregex

D. None of the above

Answer:A

## 5. What is the output of the following program : print 0.1 + 0.2 == 0.3

A. True

B. False

C. Machine dependent

D. Error

Answer:B

Explanation:- Neither of 0.1, 0.2 and 0.3 can be represented accurately in binary. The round off errors from 0.1 and 0.2 accumulate and hence there is a difference of 5.5511e-17 between (0.1 + 0.2) and 0.3.

## 6. Which of these is not a core data type?

A. Lists

B. Dictionary

C. Tuples

D. Class

Answer:D

## 7. What data type is the object below? L = [1, 23, „hello?, 1]

A. List

B. Dictionary

C. Tuple

D. Array

Answer:A

## 8. What is the output of the following program :

```
def myfunc(a):
a = a + 2
a = a * 2
return a
print myfunc(2)
```

A. 8

B. 16

C. Indentation Error

D. Runtime Error

Answer:C

**9. What is the output of the expression : 3*1**3**

A. 27

B. 9

C. 3

D. 1

Answer:C

---

**10. What is the output of the following program : print '{0:.2}'.format(1.0 / 3)**

A. 0.333333

B. 0.33

C. 0.333333:-2

D. Error

Answer:B

---

**11. What is the output of the following program : print '{0:-2%}'.format(1.0 / 3)**

A. 0.33

B. 0.33%

C. 33.33%

D. 33%

Answer:C

---

**12. What is the output of the following program :**
**i = 0**
**while i < 3:**
**print i**
**i += 1**
**else:**
**print 0**

A. 0 1 2 3 0

B. 0 1 2 0

C. 0 1 2

D. Error

Answer:B

---

**13. What is the output of the following program :**
**i = 0**
**while i < 5:**

**print(i)**
**i += 1**
**if i == 3:**
**break**
**else:**
**print(0)**

A. 0 1 2 0

B. 0 1 2

C. Error

D. None of the above

Answer:B

---

## 14. What is the output of the following program : print 'cd'.partition('cd')

A. („cd?)

B. (”)

C. („cd?, ”, ”)

D. (”, „cd?, ”)

Answer:D

---

## 15. What is the output of the following program : print 'abcefd'.replace('cd', '12')

A. ab1ef2

B. abcefd

C. ab1efd

D. ab12ed2

Answer:B

---

## 16. What will be displayed by the following code?

**def f(value, values):**
**v = 1**
**values[0] = 44**
**t = 3**
**v = [1, 2, 3]**
**f(t, v)**
**print(t, v[0])**

A. 1 1

B. 1 44

C. 3 1

D. 3 44

Answer:D

**17. Predict the output of following python programs**

```
dictionary1 = {'Google' : 1,
'Facebook' : 2,
'Microsoft' : 3
}
dictionary2 = {'GFG' : 1,
'Microsoft' : 2,
'Youtube' : 3
}
dictionary1.update(dictionary2);
for key, values in dictionary1.items():
print(key, values)
```

A. Compilation error

B. Runtime error

C. („Google?, 1) („Facebook?, 2) („Youtube?, 3) („Microsoft?, 2) („GFG?, 1)

D. None of these

Answer:C

**18. What is the output of the following program?**

```
dictionary1 = {'GFG' : 1,
'Google' : 2,
'GFG' : 3
}
print(dictionary1['GFG']);
```

A. Compilation error due to duplicate keys

B. Runtime time error due to duplicate keys

C. 3

D. 1

Answer:C

**19. What is the output of the following program?**

```
temp = dict()
temp['key1'] = {'key1' : 44, 'key2' : 566}
temp['key2'] = [1, 2, 3, 4]
for (key, values) in temp.items():
print(values, end = "")
```

A. Compilation error

B. {„key1?: 44, „key2?: 566}[1, 2, 3, 4]

C. Runtime error

D. None of the above

Answer:B

---

### 20. What is the output of the following program?

```
data = [2, 3, 9]
temp = [[x for x in[data]] for x in range(3)]
print (temp)
```

A. [[[2, 3, 9]], [[2, 3, 9]], [[2, 3, 9]]]

B. [[2, 3, 9], [2, 3, 9], [2, 3, 9]]

C. [[[2, 3, 9]], [[2, 3, 9]]]

D. None of these

Answer:A

---

### 21. What is the output of the following program?

```
data = [x for x in range(5)]
temp = [x for x in range(7) if x in data and x%2==0]
print(temp)
```

A. [0, 2, 4, 6]

B. [0, 2, 4]

C. [0, 1, 2, 3, 4, 5]

D. Runtime error

Answer:B

---

### 22. What is the output of the following program?

```
L1 = [1, 2, 3, 4]
L2 = L1
L3 = L1.copy()
L4 = list(L1)
L1[0] = [5]
print(L1, L2, L3, L4)
```

A. [5, 2, 3, 4] [5, 2, 3, 4] [1, 2, 3, 4] [1, 2, 3, 4]

B. [[5], 2, 3, 4] [[5], 2, 3, 4] [[5], 2, 3, 4] [1, 2, 3, 4]

C. [5, 2, 3, 4] [5, 2, 3, 4] [5, 2, 3, 4] [1, 2, 3, 4]

D. [[5], 2, 3, 4] [[5], 2, 3, 4] [1, 2, 3, 4] [1, 2, 3, 4]

Answer:D

---

**23. What is the output of the following program?**

```
import sys
L1 = tuple()
print(sys.getsizeof(L1), end = " ")
L1 = (1, 2)
print(sys.getsizeof(L1), end = " ")
L1 = (1, 3, (4, 5))
print(sys.getsizeof(L1), end = " ")
L1 = (1, 2, 3, 4, 5, [3, 4], 'p', '8', 9.777, (1, 3))
print(sys.getsizeof(L1))
```

A. 0 2 3 10

B. 32 34 35 42

C. 48 64 72 128

D. 48 144 192 480

Answer:C

---

**24. What is the output of the following program?**

```
T = (1, 2, 3, 4, 5, 6, 7, 8)
print(T[T.index(5)], end = " ")
print(T[T[T[6]-3]-6])
```

A. 4 0

B. 5 8

C. 5 IndexError

D. 4 1

Answer:B

---

**25. What is the output of the following program?**

```
L = [1, 3, 5, 7, 9]
print(L.pop(-3), end = ' ')
print(L.remove(L[0]), end = ' ')
print(L)
```

A. 5 None [3, 7, 9]

B. 5 1 [3, 7, 9]

C. 5 1 [3, 7, 9]

D. 5 None [1, 3, 7, 9]

Answer:A

---

**26. What is the output of the following program?**

```
def REVERSE(L):
```

**L.reverse()**
**return(L)**
**def YKNJS(L):**
**List = list()**
**List.extend(REVERSE(L))**
**print(List)**
**L = [1, 3.1, 5.31, 7.531]**
**YKNJS(L)**

A. [1, 3.1, 5.31, 7.531]

B. [7.531, 5.31, 3.1, 1]

C. IndexError

D. AttributeError: „NoneType? object has no attribute „REVERSE?

Answer:B

---

**27. What is the output of the following program?**
**from math import sqrt**
**L1 = [x**2 for x in range(10)].pop()**
**L1 + = 19**
**print(sqrt(L1), end = " ")**
**L1 = [x**2 for x in reversed(range(10))].pop()**
**L1 + = 16**
**print(int(sqrt(L1)))**

A. 10.0 4.0

B. 4.3588 4

C. 10 .0 4

D. 10.0 0

Answer:C

---

**28. What is the output of the following program?**
**D = dict()**
**for x in enumerate(range(2)):**
**D[x[0]] = x[1]**
**D[x[1]+7] = x[0]**
**print(D)**

A. KeyError

B. {0: 1, 7: 0, 1: 1, 8: 0}

C. {0: 0, 7: 0, 1: 1, 8: 1}

D. {1: 1, 7: 2, 0: 1, 8: 1}

Answer:C

---

**29. What is the output of the following program?**
**D = {1 : 1, 2 : '2', '1' : 1, '2' : 3}**
**D['1'] = 2**
**print(D[D[D[str(D[1])]]])**

A. 2

B. 3

C. „2?

D. KeyError

Answer:B

---

**30. What is the output of the following program?**
**D = dict()**
**for i in range (3):**
**for j in range(2):**
**D[i] = j**
**print(D)**

A. {0: 0, 1: 0, 2: 0}

B. {0: 1, 1: 1, 2: 1}

C. {0: 0, 1: 0, 2: 0, 0: 1, 1: 1, 2: 1}

D. TypeError: Immutable object

Answer:B

---

**31. What is the output of the following program? from math import ***
**a = 2.13**
**b = 3.7777**
**c = -3.12**
**print(int(a), floor(b), ceil(c), fabs(c))**

A. 2 3 -4 3

B. 2 3 -3 3.12

C. 2 4 -3 3

D. 2 3 -4 3.12

Answer:B

---

**32. What is the output of the following program?**

A. [0, „2?, „3?, „4?, „5?, 0]

B. [„6?, „2?, „3?, „5?, „5?, „6?]

C. [„0?, „2?, „3?, „5?, „5?, „0?]

D. [0, „2?, „3?, „5?, „5?, 0]

Answer:D

### 33. What is the output of the following program?

```
import string
import string
Line1 = "And Then There Were None"
Line2 = "Famous In Love"
Line3 = "Famous Were The Kol And Klaus"
Line4 = Line1 + Line2 + Line3
print(string.find(Line1, 'Were'), string.count((Line4), 'And'))
```

A. True 1

B. 15 2

C. (15, 2)

D. True 2

Answer:C

### 34. What is the output of the following program?

```
line = "What will have so will"
L = line.split('a')
for i in L:
print(i, end=' ')
```

A. [„What?, „will?, „have?, „so?, „will?]

B. Wh t will h ve so will

C. What will have so will

D. [„Wh?, „t will h?, „ve so will?]

Answer:B

### 35. What is the type of each element in sys.argv?

A. set

B. list

C. tuple

D. string

Answer:D

### 36. What is the length of sys.argv?

A. number of arguments

B. number of arguments + 1

C. number of arguments – 1

D. none of the mentioned

Answer:B

### 37. What is the output of the following code?

```
def foo(k):
k[0] = 1
q = [0]
foo(q)
print(q)
```

A. [0].

B. [1].

C. [1, 0].

D. [0, 1].

Answer:B

### 38. What is the output of the following code?

```
def foo(fname, val):
print(fname(val))
foo(max, [1, 2, 3])
foo(min, [1, 2, 3])
```

A. 3 1

B. 1 3

C. error

D. none of the mentioned

Answer:A

### 39. What is the output of the following?

```
elements = [0, 1, 2]
def incr(x):
return x+1
print(list(map(elements, incr)))
```

A. [1, 2, 3].

B. [0, 1, 2].

C. error

D. none of the mentioned

Answer:C

**40. What is the output of the following?**
**elements = [0, 1, 2]**
**def incr(x):**
**return x+1**
**print(list(map(incr, elements)))**

A. [1, 2, 3].

B. [0, 1, 2].

C. error

D. none of the mentioned

Answer:A

---

**41. What is the output of the following?**
**def to_upper(k):**
**return k.upper()**
**x = ['ab', 'cd']**
**print(list(map(to_upper, x)))**

A. [„AB?, „CD?].

B. [„ab?, „cd?].

C. none of the mentioned

D. error

Answer:A

---

**42. What is the output of the following?**
**x = ['ab', 'cd']**
**print(len(list(map(list, x))))**

A. 2

B. 4

C. error

D. none of the mentioned

Answer:A

---

**43. Program code making use of a given module is called a _____ of the module.**

A. Client

B. Docstring

C. Interface

D. Modularity

Answer:A

---

**44. What is the output of the following piece of code?**
**#mod1**
**def change(a):**
**b=[x*2 for x in a]**
**print(b)**
**#mod2**
**def change(a):**
**b=[x*x for x in a]**
**print(b)**
**from mod1 import change**
**from mod2 import change**
**#main**
**s=[1,2,3]**
**change(s)**

A. [2,4,6].

B. [1,4,9].

C. [2,4,6].

D. There is a name clash

Answer:D

---

**45. What is the output of the following program? tday=datetime.date.today() print(tday.month())**

A. August

B. Aug

C. 08

D. 8

Answer:D

---

**46. Which of the following formatting options can be used in order to add „n? blank spaces after a given string „S??**

A. print(“-ns”%S)

B. print(“-ns”%S)

C. print(“%ns”%S)

D. print(“%-ns”%S)

Answer:D

---

**47. What is the output of the following program?**
**f = None**
**for i in range (5):**

**with open("data.txt", "w") as f:**
**if i > 2:**
**break**
**print(f.closed)**

A. True

B. False

C. None

D. Error

Answer:A

---

## 48. To read the entire remaining contents of the file as a string from a file object infile, we use

A. infile.read(2)

B. infile.read()

C. infile.readline()

D. infile.readlines()

Answer:B

---

## 49. Suppose t = (1, 2, 4, 3), which of the following is incorrect?

A. print(t[3])

B. t[3] = 45

C. print(max(t))

D. print(len(t))

Answer:B

---

**1. What is R?**

a. A statistical programming language

b. A spreadsheet program

c. A web development language

d. An operating system

**Answer: a.** A statistical programming language

**2. Which of the following is the correct syntax for assigning a value to a variable in R?**

a. var = 10

b. 10 = var

c. var == 10

d. var := 10

**Answer: a.** var = 10

**3. Which of the following is a valid variable name in R?**

a. 2var

b. var2

c. var_2

d. var#2

**Answer: b.** var2

**4. What is the output of the following code in R?**

x <- 1:5 y <- x^2 plot(x, y)

a. A scatterplot of x versus y

b. A line plot of x versus y

c. A histogram of x

d. An error message

**Answer: a.** A scatterplot of x versus y

**5. What is the output of the following code in R?**

x <- c(1, 2, 3) y <- c(4, 5, 6) z <- x + y

a. An error message

b. The vector [5, 7, 9]

c. The vector [1, 2, 3, 4, 5, 6]

d. The vector [1, 4, 9]

**Answer: b.** The vector [5, 7, 9]

**6. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- x[x > 2] print(y)

a. The vector [2, 3, 4, 5]

b. The vector [1, 2, 3]

c. The vector [3, 4, 5]

d. An error message

**Answer: c.** The vector [3, 4, 5]

**7. What is the output of the following code in R?**

`x <- c(1, 2, 3)

y <- c(4, 5, 6)

z <- cbind(x, y)

a. A matrix with two rows and three columns

b. A matrix with three rows and two columns

c. A list with two elements

d. An error message

**Answer: a.** A matrix with two rows and three columns

**8. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) mean(x)

a. 3

b. 3.5

c. 4

d. 5

**Answer: b**. 3.5

**9. What is the output of the following code in R?**

x <- c(1, 2, 3) y <- c(2, 4, 6) cor(x, y)

a. -1

b. 0

c. 1

d. 2

**Answer: c.** 1

**10. What is the output of the following code in R?**

x <- c(1, 2, 3) y <- c(4, 5, 6) lm(y ~ x)

a. An error message

b. A linear regression model object

c. A scatterplot of x versus y

d. A summary of the regression model

**Answer: b.** A linear regression model object

**11. Which of the following is a valid way to read in a CSV file in R?**

a. read.csv("data.csv")

b. read.table("data.csv")

c. read.excel("data.csv")

d. load("data.csv")

**Answer: a**. read.csv("data.csv")

**12. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) lm(y ~ x)$coefficients

a. A vector containing the intercept and slope of the linear regression model

b. A scatterplot of x versus y

c. A correlation matrix between x and y

d. An error message

**Answer: a.** A vector containing the intercept and slope of the linear regression model

**13. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) summary(lm(y ~ x))$r.squared

a. The R-squared value of the linear regression model

b. A scatterplot of x versus y

c. A summary of the regression model

d. An error message

**Answer: a.** The R-squared value of the linear regression model

**14. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) plot(x, y)

a. A scatterplot of x versus y

b. A line plot of x versus y

c. A bar plot of x versus y

d. An error message

**Answer: a.** A scatterplot of x versus y

**15. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) cor(x, y)^2

a. The R-squared value of the linear regression model

b. A scatterplot of x versus y

c. The correlation coefficient between x and y

d. An error message

**Answer: a.** The R-squared value of the linear regression model

**16. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) lm(y ~ x)

a. A scatterplot of x versus y

b. A summary of the regression model

c. The regression coefficients of the model

d. An error message

**Answer: b.** A summary of the regression model

**17. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) summary(lm(y ~ x))$coefficients

a. A scatterplot of x versus y

b. A summary of the regression model

c. The regression coefficients of the model

d. An error message

**Answer: c.** The regression coefficients of the model

**18. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) predict(lm(y ~ x))

a. A scatterplot of x versus y

b. The predicted values of y based on the regression model

c. A summary of the regression model

d. An error message

**Answer: b.** The predicted values of y based on the regression model

**19. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) resid <- residuals(lm(y ~ x)) sum(resid)

a. The R-squared value of the linear regression model

b. A scatterplot of x versus y

c. The sum of squared residuals of the regression model

d. An error message

**Answer: d.** An error message

**20. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) resid <- residuals(lm(y ~ x)) sum(resid^2)

a. The R-squared value of the linear regression model

b. A scatterplot of x versus y

c. The sum of squared residuals of the regression model

d. An error message

**Answer: c.** The sum of squared residuals of the regression model

**21. Which of the following statements is true about missing values in R?**

a. R automatically replaces missing values with the mean of the non-missing values

b. Missing values are denoted by the character “NA”

c. R automatically removes observations with missing values from analyses

d. All of the above

**Answer: b.** Missing values are denoted by the character “NA”

**22. Which of the following statements is true about factors in R?**

a. Factors are used to represent continuous variables

b. Factors are used to represent categorical variables

c. Factors are always stored as integers

d. Factors can be used in mathematical calculations

**Answer: b.** Factors are used to represent categorical variables

**23. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c(“A”, “B”, “C”, “D”, “E”) df <- data.frame(x, y, z) head(df)

a. A scatterplot of x versus y

b. A summary of the data frame

c. The first six rows of the data frame

d. An error message

**Answer: c.** The first six rows of the data frame

**24. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c(“A”, “B”, “C”, “D”, “E”) df <- data.frame(x, y, z) subset(df, y > 6)

a. A scatterplot of x versus y with only the points where y is greater than 6

b. A summary of the data frame with only the rows where y is greater than 6

c. The first six rows of the data frame

d. An error message

**Answer: b.** A summary of the data frame with only the rows where y is greater than 6

**25. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c(“A”, “B”, “C”, “D”, “E”) df <- data.frame(x, y, z) levels(df$z)

a. The number of unique values in the z variable

b. The names of the levels in the z factor

c. The values of x where z is equal to “A”

d. An error message

**Answer: b.** The names of the levels in the z factor

**26. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c(“A”, “B”, “C”, “D”, “E”) df <- data.frame(x, y, z) cor(df$x, df$y)

a. The correlation between x and y

b. A scatterplot of x versus y

c. The coefficients of a linear regression model predicting y from x

d. An error message

**Answer: a.** The correlation between x and y

**27. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c(“A”, “B”, “C”, “D”, “E”) df <- data.frame(x, y, z) summary(lm(y ~ x, data = df))

a. A scatterplot of x versus y with a linear regression line

b. A summary of the data frame with the coefficients of a linear regression model predicting y from x

c. The p-value of a t-test for the slope of the linear regression model predicting y from x

d. An error message

**Answer: b.** A summary of the data frame with the coefficients of a linear regression model predicting y from x

**28. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c("A", "B", "C", "D", "E") df <- data.frame(x, y, z) t.test(df$x, df$y)

a. A scatterplot of x versus y with a t-test for the difference in means

b. A summary of the data frame with the p-value of a t-test for the difference in means of x and y

c. The coefficients of a linear regression model predicting y from x with a t-test for the slope

d. An error message

**Answer: b.** A summary of the data frame with the p-value of a t-test for the difference in means of x and y

**29. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c("A", "B", "C", "D", "E") df <- data.frame(x, y, z) library(ggplot2) ggplot(df, aes(x = x, y = y)) + geom_point()

a. A scatterplot of x versus y

b. A summary of the data frame

c. The first six rows of the data frame

d. An error message

**Answer: a.** A scatterplot of x versus y

**30. Which of the following functions in R can be used to create a histogram?**

a. scatterplot()

b. boxplot()

c. density()

d. hist()

**Answer: d.** hist()

**31. Which of the following statements about factors in R is true?**

a. Factors are used to represent numeric data in R.

b. Factors are used to represent categorical data in R.

c. Factors are used to represent missing values in R.

d. Factors are used to represent character data in R.

**Answer: b**. Factors are used to represent categorical data in R.

**32. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c("A", "B", "C", "D", "E") df <- data.frame(x, y, z)

subset(df, x > 2)

a. A subset of the data frame where x is greater than 2

b. A subset of the data frame where y is greater than 2

c. A subset of the data frame where z is greater than 2

d. An error message

**Answer: a.** A subset of the data frame where x is greater than 2

**33. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c("A", "B", "C", "D", "E") df <- data.frame(x, y, z)

aggregate(df$y, by = list(df$x), mean)

a. A summary of the data frame with the mean value of y for each value of x

b. A summary of the data frame with the median value of y for each value of x

c. A summary of the data frame with the maximum value of y for each value of x

d. An error message

**Answer: a.** A summary of the data frame with the mean value of y for each value of x

**34. Which of the following functions in R can be used to generate a sequence of numbers?**

a. rep()

b. seq()

c. sort()

d. length()

**Answer: b.** seq()

**35. Which of the following functions in R can be used to calculate the standard deviation of a vector of numbers?**

a. mean()

b. median()

c. var()

d. sd()

**Answer: d.** sd()

**36. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- c("A", "B", "C", "D", "E") df <- data.frame(x, y, z) colnames(df) <- c("X", "Y", "Z") head(df)

a. A data frame with three columns named X, Y, and Z

b. A data frame with three columns named x, y, and z

c. An error message

d. A vector with the names of the columns in the data frame

**Answer: a.** A data frame with three columns named X, Y, and Z

**37. Which of the following functions in R can be used to generate a random sample from a vector?**

a. mean()

b. median()

c. var()

d. sample()

**Answer: d.** sample()

**38. Which of the following is a valid way to select the first row of a data frame named df in R?**

a. df[0,]

b. df[1,]

c. df[,1]

d. df[,0]

**Answer: b.** df[1,]

**39. Which of the following functions in R can be used to remove missing values from a vector?**

a. na.rm()

b. na.omit()

c. na.fill()

d. na.exclude()

**Answer: b.** na.omit()

**40. What is the output of the following code in R?**

x <- 1:10 y <- 11:20 z <- cbind(x, y) z[,2]

a. A vector containing the values 1 through 10

b. A vector containing the values 11 through 20

c. A matrix containing the values 1 through 10 in the first column and the values 11 through 20 in the second column

d. An error message

**Answer: b.** A vector containing the values 11 through 20

**41. Which of the following functions can be used to convert a factor variable in R to a character variable?**

a. as.factor()

b. as.character()

c. as.numeric()

d. as.logical()

**Answer: b.** as.character()

**42. Which of the following functions in R can be used to calculate the standard deviation of a vector?**

a. var()

b. sd()

c. mean()

d. min()

**Answer: b.** sd()

**43. Which of the following functions in R can be used to generate random numbers from a normal distribution?**

a. rnorm()

b. runif()

c. rpois()

d. rbeta()

**Answer: a.** rnorm()

**44. What is the output of the following code in R?**

x <- list(1:3, 4:6, 7:9) lapply(x, sum)

a. A list containing the sums of the vectors in x

b. A list containing the mean of the vectors in x

c. A list containing the median of the vectors in x

d. An error message

**Answer: a.** A list containing the sums of the vectors in x

**45. Which of the following functions in R can be used to calculate the correlation between two vectors?**

a. cor()

b. cov()

c. sd()

d. var()

**Answer: a.** cor()

**46. Which of the following functions in R can be used to create a scatterplot matrix?**

a. plot()

b. pairs()

c. hist()

d. boxplot()

**Answer: b.** pairs()

**47. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) cor(x, y)

a. The correlation coefficient between x and y

b. A scatterplot of x vs. y with a regression line

c. The R-squared value for the regression of y on x

d. An error message

**Answer: a.** The correlation coefficient between x and y

**48. Which of the following functions in R can be used to perform principal component analysis (PCA)?**

a. prcomp()

b. cor()

c. lm()

d. t.test()

**Answer: a.** prcomp()

**49. Which of the following functions in R can be used to read in data from a CSV file?**

a. read.csv()

b. read.table()

c. read.delim()

d. All of the above

**Answer: d.** All of the above

**50. Which of the following functions in R can be used to create a boxplot?**

a. boxplot()

b. hist()

c. plot()

d. lines()

**Answer: a.** boxplot ()

**51. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) summary(lm(y ~ x))

a. A summary of the linear regression of y on x

b. A summary of the correlation between x and y

c. A summary of the principal components of x and y

d. An error message

**Answer: a.** A summary of the linear regression of y on x

**52. Which of the following functions in R can be used to calculate the median of a vector?**

a. mean()

b. median()

c. mode()

d. var()

**Answer: b.** median()

**53. What is the output of the following code in R?**

x <- c(1, 2, 3, 4, 5) y <- c(4, 5, 6, 7, 8) z <- x + y mean(z)

a. The arithmetic mean of the vector z

b. The arithmetic mean of the vector x

c. The arithmetic mean of the vector y

d. An error message

**Answer: a.** The arithmetic mean of the vector z

**54. Which of the following functions in R can be used to create a cumulative distribution function (CDF) plot?**

a. hist()

b. ecdf()

c. density()

d. qqnorm()

**Answer: b.** ecdf()

**55. What is the output of the following code in R?**

x <- c (1, 2, 3, 4, 5) y <- c (4, 5, 6, 7, 8) cor(x, y, method = “spearman”)

a. The Spearman correlation coefficient between x and y

b. The Pearson correlation coefficient between x and y

c. The Kendall correlation coefficient between x and y

d. An error message

**Answer: a.** The Spearman correlation coefficient between x and y

**56. What is the use of the c () function in R?**

a) It combines values into a vector or list.

b) It creates a new class.

c) It checks conditions.

d) It concatenates strings.