

Enrollment No. :

Centre Code :

Invigilator Sign.

Date :

Total number of printed pages = 8

2024

(MOOCs) IDC

Paper : MOOCIDC2013

(Advanced R Programming for Data
Analytics in Business)

Full Marks : 50

Pass Marks : 20

Time : 2 hours

(Question carries 1 mark each)

Please tick (✓) the correct answer

Use of correction fluid is prohibited ** Multiple ticks will be treated as incorrect.

-
1. **What is R primarily used for in business analytics?**
 - A) Designing websites
 - B) Data manipulation, analysis, and visualization
 - C) Writing and maintaining software applications
 - D) Managing large databases
 2. **Which of the following is the basic data structure in R?**
 - A) Data frame
 - B) Matrix
 - C) Vector
 - D) List
 3. **What function in R is used to create a vector?**
 - A) create()
 - B) c()
 - C) vector()
 - D) list()
 4. **Which of the following R data structures allows elements of different types?**
 - A) Matrix
 - B) Data frame
 - C) Vector
 - D) List

5. **In R, which function is used to create a data frame?**
- A) frame()
 - B) data.frame()
 - C) table()
 - D) matrix()
6. **What is the primary advantage of using a data frame in R for business data analysis?**
- A) It stores data in a tabular form, similar to spreadsheets
 - B) It only stores numeric data
 - C) It provides a way to store data in matrix form
 - D) It eliminates the need for external data sources
7. **How do you access the third element of a vector x in R?**
- A) x[3]
 - B) x{3}
 - C) x(3)
 - D) x:3
8. **What function in R is used to find the length of a vector?**
- A) len()
 - B) length()
 - C) size()
 - D) count()
9. **Which of the following is true for matrices in R?**
- A) They can only store numeric data
 - B) They are one-dimensional data structures
 - C) They can store data in rows and columns
 - D) They cannot be transposed
10. **What does the str() function do in R?**
- A) Displays the structure of an R object
 - B) Sorts an object in ascending order
 - C) Converts a vector into a string
 - D) Sums all elements of a vector
11. **Which function in R is used to check for missing values in a dataset?**
- A) missing()
 - B) is.na()
 - C) na.omit()
 - D) na.fail()

12. Which function in R removes missing values from a data frame?
- A) `remove.na()`
 - B) `na.rm()`
 - C) `na.omit()`
 - D) `na.delete()`
13. Which of the following is the correct way to sort a data frame by a column named "Sales" in ascending order in R?
- A) `sort(df$Sales)`
 - B) `order(df$Sales)`
 - C) `df[order(df$Sales),]`
 - D) `sort(df, by="Sales")`
14. What function in R is used to merge two data frames?
- A) `combine()`
 - B) `merge()`
 - C) `join()`
 - D) `bind()`
15. How do you filter rows in a data frame where the "Revenue" column is greater than 5000 in R?
- A) `df[Revenue > 5000,]`
 - B) `filter(df, Revenue > 5000)`
 - C) `df$Revenue > 5000`
 - D) `df[5000 < Revenue,]`
16. Which of the following is used to create a new column in a data frame in R?
- A) `df$new_column <- function()`
 - B) `df$new_column <- df$existing_column * 2`
 - C) `df$new_column = df$existing_column + 1`
 - D) All of the above
17. What function in R is used to apply a function to each column of a data frame?
- A) `apply()`
 - B) `lapply()`
 - C) `sapply()`
 - D) All of the above
18. Which of the following functions is used to split a data frame into subsets based on a factor in R?
- A) `subset()`
 - B) `split()`
 - C) `group_by()`
 - D) `filter()`

19. Which of the following methods can be used to detect duplicates in a data frame in R?
A) duplicated()
B) unique()
C) distinct()
D) remove_duplicates()
20. What function in R allows you to count the frequency of unique values in a vector?
A) table()
B) count()
C) summary()
D) tally()
21. Which function in R is used to calculate the mean of a numeric vector?
A) mean()
B) avg()
C) sum()
D) total()
22. What does the sd() function in R compute?
A) Variance
B) Standard deviation
C) Sum of squares
D) Mean of squared differences
23. Which R function is used to compute the correlation between two variables?
A) correlation()
B) cor()
C) cor.test()
D) lm()
24. What does the summary() function in R provide for a data frame?
A) A summary of the column names
B) Statistical summary including mean, median, and quartiles
C) A graphical summary
D) The number of rows and columns
25. In R, which function is used to fit a linear regression model?
A) lm()
B) fit()
C) model()
D) reg()

26. Which of the following is used to check the residuals of a regression model in R?
- A) `plot(model$residuals)`
 - B) `summary(model)`
 - C) `residuals(model)`
 - D) all of the above
27. What does the `t.test()` function in R perform?
- A) Paired sample t-test
 - B) Independent two-sample t-test
 - C) One-sample t-test
 - D) All of the above
28. Which of the following functions is used to perform hypothesis testing in R?
- A) `test()`
 - B) `hypothesis()`
 - C) `t.test()`
 - D) `mean.test()`
29. What function would you use to perform an ANOVA test in R?
- A) `aov()`
 - B) `anova()`
 - C) `lm()`
 - D) `test()`
30. What function in R is used to calculate the quantiles of a dataset?
- A) `quantile()`
 - B) `quantiles()`
 - C) `percentile()`
 - D) `cut()`
31. Which R function is used to create a basic scatter plot?
- A) `plot()`
 - B) `scatter()`
 - C) `graph()`
 - D) `chart()`
32. What function in R is used to create a bar plot?
- A) `barplot()`
 - B) `bar()`
 - C) `plot.bar()`
 - D) `plot()`

33. Which of the following packages is widely used for advanced data visualization in R?
- A) ggplot2
 - B) plotly
 - C) lattice
 - D) All of the above
34. What function in R creates a boxplot?
- A) boxplot()
 - B) plot.box()
 - C) box()
 - D) barplot()
35. Which function is used to create a histogram in R?
- A) hist()
 - B) histogram()
 - C) plot.hist()
 - D) density()
36. What does the `geom_bar()` function do in ggplot2?
- A) It creates a line chart to visualize trends over time.
 - B) It creates a bar chart to display the distribution of a categorical variable.
 - C) It creates a scatter plot to visualize relationships between two continuous variables.
 - D) It adds a regression line to a scatter plot.
37. Which function in R is used to create a line graph using the ggplot2 package?
- A) `geom_line()`
 - B) `geom_curve()`
 - C) `line_plot()`
 - D) `plot_line()`
38. Which of the following functions is used to customize the appearance of a plot in R?
- A) `plot()`
 - B) `theme()`
 - C) `axes()`
 - D) `adjust()`
39. What does the `facet_wrap()` function in ggplot2 do?
- A) It splits a plot into multiple smaller plots based on a factor variable
 - B) It wraps the plot in a specific style
 - C) It changes the color of the plot
 - D) It adjusts the size of the plot

40. Which function in R is used to add a title to a plot?
- A) `add_title()`
 - B) `ggtitle()`
 - C) `plot_title()`
 - D) `title()`
41. Which of the following is used to create a heatmap in R?
- A) `heatmap()`
 - B) `ggplot2::geom_tile()`
 - C) `lattice::levelplot()`
 - D) All of the above
42. Which of the following is a valid function to create a scatter plot in ggplot2?
- A) `ggscatter()`
 - B) `geom_point()`
 - C) `scatter_plot()`
 - D) `scatter()`
43. Which of the following is the correct way to add a regression line to a scatter plot in ggplot2?
- A) `geom_line()`
 - B) `geom_abline()`
 - C) `geom_smooth(method = "lm")`
 - D) `add_regression_line()`
44. In the ggplot2 package, what function is used to customize the axis labels of a plot?
- A) `axis_labels()`
 - B) `scale_x_continuous()` and `scale_y_continuous()`
 - C) `xaxis()` and `yaxis()`
 - D) `label_axis()`
45. Which of the following is used to create a pie chart in R?
- A) `pie()`
 - B) `pie_chart()`
 - C) `ggpie()`
 - D) `plot_pie()`
46. What does the ggplot2 function `geom_histogram()` do?
- A) It creates a histogram of the data
 - B) It creates a bar chart
 - C) It creates a density plot
 - D) It creates a line plot

47. **What is the purpose of the `scale_color_manual()` function in `ggplot2`?**
- A) It changes the color of the plot's background
 - B) It changes the color of the axis labels
 - C) It customizes the color of elements in the plot
 - D) It sets the color of the legend
48. **Which of the following functions in R is used to save a plot as a file?**
- A) `save.plot()`
 - B) `export_plot()`
 - C) `ggsave()`
 - D) `plot.save()`
49. **In `ggplot2`, which function is used to add grid lines to a plot?**
- A) `geom_grid()`
 - B) `theme(panel.grid = element_line())`
 - C) `add_grid()`
 - D) `grid_lines()`
50. **Which of the following is a common method to display multiple plots in a single window in R?**
- A) `multiplot()`
 - B) `grid.arrange()` from the `gridExtra` package
 - C) `par(mfrow = c(1, 2))`
 - D) All of the above
-