Advanced Java Programming sample questions (for unit-1 to unit-4)

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Long Questions:

1. Explain the JVM architecture. Discuss any five Java buzzwords. Why java is called platform independent language?

2. List Java buzzwords with explanations. What is the role of byte code in Java program compilation and execution?

3. Explain about exception handling in Java. Differentiate between checked and unchecked exceptions in Java. Write a program to demonstrate the use of throw and throws keywords.

4. Why exception handling is important? Discuss about the keywords used in exception handling with proper syntax. Write a program to demonstrate the use of try, catch and finally blocks.

5. Discuss about the thread states (thread life cycle). Explain the thread creation process using Runnable interface and Thread class with separate Java program for each technique.

6. Differentiate between method overloading and method overriding in Java with suitable programs for each.

7. How abstract class and interface are different. Explain the use of interface to achieve multiple inheritance in Java with suitable programing example.

8. What is random accessing of file? Explain with suitable java program. Write a program to demonstrate serialization concept in Java.

9. Write four differences between AWT and swing. What are layout managers? Write a program to illustrate grid layout manager.

10. Discuss the importance if layout managers in Java GUI development. List any five layout managers and explain any two of them with suitable Java programs.

11. What is event handling? Discuss about event classes, listener interfaces and adapter classes. Write a program to demonstrate key event handling with explanation.

12. What is JDBC? Define JDBC driver and explain it's type. Write a Java program to insert a record in a table. (Assume your own database server, database and table).

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13. Explain the statement - "Swing is based on AWT". Create a GUI with following components and functionalities:
    — A frame should contain two text fields to take two real numbers, three buttons with icons to indicate add, subtract & multiply and a label to display the result of computation
    — When user clicks on particular button, corresponding result should be displayed
14. Write the notable differences between Row Set and Result Set. Provided that a MySql database named **"OurCompany"** with table named **"Product"** with following columns (*ProductId* as int, *ProductName* as varchar(20), *UnitPrice* as double). Write a java program to connect to the database and delete product record as per the *ProductId* value entered by user from console. (use PreparedStatement)

Short Questions:

15. How for each loop is different than for loop in Java. Write a program to fetch the elements of an array using for each loop.
16. How constructor and method are different? Explain the concept of constructor overloading with example.
17. Why inheritance is important? Write a program to demonstrate a use of super keyword.
18. Define multithreading. Create a Thread that prints numbers from 100 to 1 in the interval of 3 seconds by extending the **Thread** Class.
19. What is prepared statement? Write a java program using PreparedStatement that allows a user to insert values to a table of particular database (Suppose any database server).
20. WAP in Java to read and display all the data stored in a table of some database using JDBC.
21. Assume a database named "Computer", that contains a table named "processor" with attributes (processorID, speed, company, cost). Write a program to update the processor's company name to Intel whose company is IBM.
22. Assume a database named "College", that contains a table named "teachers" with attributes (teacherID, name, empType, contactNumber, salary). Write a program to display the details of teachers whose empType is "full time".
23. What is thread priority? Write a program to demonstrate the concept.

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24. Differentiate between static polymorphism and dynamic polymorphism.

25. What is layout manager? Write a program to demonstrate border layout manager.

26. Differentiate between character stream and byte stream? Write a program to read the contents of a file using character stream.

27. What are character stream and byte stream? Write a program to read from a file and write to another file using byte stream.

28. Write a program to take a sentence typed from keyboard and save them in a text file.

29. What is inner class? Discuss about it's types.

30. How can we write an object to file and read object from file? Explain with example.

31. What is method overriding? Demonstrate the concept with suitable program.

32. What is thread synchronization? What are two ways to synchronize thread? Why threads are synchronized?

33. Create a GUI interface that should contain combo box, check box, and a button.

34. What is no layout manager? Write program to demonstrate the concept.

35. Discuss about menu bar, menu and menu items in swing GUI development. Write a program to create a frame with these components.

36. What are dialog boxes? List any three important methods of JOptionPane class to create different dialog boxes with syntax.

37. Create a swing GUI having table and list.

38. Create a swing GUI having radio button and slider.

39. Create a swing GUI having tree and text area.

40. Create a swing GUI having password filed and text field.

41. Create a swing GUI that contains a list and a text field. When the user selects any item in the list, it should be displayed in the text field.

42. Create a swing GUI that contains a combo box and a text field. When the user selects any item in the combo box, it should be displayed in the text field.

43. Write a program to demonstrate focus event handling.

44. Write a program to demonstrate mouse motion event handling.

45. Write a program to demonstrate item event handling.

46. Write a program to demonstrate window event handling.

47. List all the abstract methods present inside WindowListener and KeyListener with syntax.

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48. List all the abstract methods present inside MouseListener and MouseMotionListener with syntax.

49. List all the abstract methods present inside ActionListener, ChangeListener, FocusListener and ItemListener with sysntax.

50. Assume a database named "College", that contains a table named "teachers" with attributes (teacherID, name, empType, contactNumber, salary). Write a program to display the details of teachers whose empType is "full time".

51. What is adapter class? Write a program to demonstrate mouse event handling using adapter class.

52. What is pop-up menu? WAP to illustrate pop-up menu in swing.

53. Write swing program which take a string input from a text field and it should display a dialog box showing the length of string when a button is pressed.

54. Discuss about all access specifiers in Java.

55. Write short notes on:
    i. JVM and Byte code
    ii. JDK and JRE
    iii. Path and Class Path variables
    iv. Package and sub package in Java
    v. 'final' keyword
    vi. Static variable and static methods
    vii. Adapter class
    viii. Listener interface
    ix. Custom Exception
    x. Component and Containers
    xi. Icons in Menu Item
    xii. Keyboard mnemonics and Accelerators
    xiii. Check box and Radio button in menu item
    xiv. Toolbars and Tooltip text
    xv. Group Layout
    xvi. Grid bag layout
    xvii. File chooser and Color chooser

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xviii. Selection modes in list

xix. Result Set

xx. JDBC

xxi. Event handling

xxii. Inner class

xxiii. Scroll pane

xxiv. Frames and Internal Frames

xxv. Java applet

xxvi. Applet life cycle

xxvii. AWT vs Swing

xxviii. Prepared statement

xxix. SQL Exceptions

xxx. Scrollable Result Set

xxxi. Updatable Result Set

xxxii. Row Set and Cached Row Set

xxxiii. SQL escapes

xxxiv. Modal vs modeless dialog