Unit-1

| 1. | What is cross platform mobile application development? Discuss any four advantages of cross platform mobile application development over native mobile application development. |
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| 2. | List top two mobile operating systems having major market share. Discuss any four challenges in cross platform mobile application development over native mobile application development. |
| 3. | What is flutter? Explain four major features of flutter. |
| 4. | Draw the flutter architecture and explain three components of it. |
| 5. | Step-by-step explain flutter SDK installation on Windows or Mac operating system. |
| 6. | How to create new flutter project using VS Code, Android Studio, and terminal? Also explain how to rename class name from Android Studio and VS Code. |
| 7. | What is widget? Discuss when not to use flutter. |
| 8. | Write sample code snippet and explain use of Scaffold, AppBar, SafeArea, and Container. |
| 9. | How to create and add a new dart file to a flutter project in VS Code? Write Dart code snippet for creating “Employee” class with at least three properties and a constructor. |
| 10. | Mr. Mahesh is a flutter developer. He has developed a flutter app with some deprecated Dart code. Discuss how Mr. Mahesh can find out deprecated code and ONLY correct deprecated code. Suggest the recommended alternative Dart code for deprecated “accentColor”. |
| 11. | How to add images of dog, cat, cow to a flutter project in three separate folders? Explain step-by-step along with required configuration code. |
| 12. | Design a Dart class with Card, Column, Image, and Text widgets. Write required code snippet and explain your solution. |
| 13. | Analyze the following code snippet and explain each line of it: |

| 14. | Analyze the following code snippet and explain each line of it: |
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| 15. | Analyze the following code snippet and explain each line of it: |
| 16. | What is the use of pubspec.yaml file? Explain at least four information from it. |
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Unit-2

| 1. | Differentiate “runApp( )” and “main( )” functions. Also explain, when to use material.dart package. |
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| 2. | List any four category of widgets and explain any two out of it. |
| 3. | With appropriate example and required code snippet, explain input and layout widgets. |
| 4. | List at least four material widgets and explain any one with necessary code snippet. |
| 5. | List at least four layout widgets and explain any one with necessary code snippet. |
| 6. | Develop a Dart class including “Padding” and “BoxDecoration” of |

|  | “Container” widget. Discuss your code snippet. |
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| 7. | Create a flutter app demonstrating use of Row and Column widgets. Explain your solution. |
| 8. | How to create flutter project from terminal? Write command to add dependency in a flutter project. Explain using example of google\_fonts. |
| 9. | Explain AppBar and SnackBar of Scaffold with appropriate example and code snippet. |
| 10. | Explain BottomNavigationBar of Scaffold with appropriate example and code snippet. |
| 11. | Create a flutter app demonstrating use of Stack and Positioned widgets. Explain your solution. |
| 12. | Design a flutter app to display author avatar like given below:  Write necessary code snippet and explain your solution. |
| 13. | With respect to Row widget, write at least four different values of MainAxisAlignment. Draw the diagrams and explain meaning of any two MainAxisAlignment values. |
| 14. | Design a flutter app demonstrating use of Wrap and Chip widgets. Explain your solution. |
| 15. | Analyze and explain the following diagram: |
| 16. | What is the use of ListView widget? Explain any two constructors of ListView. |

| 17. | Analyze the following code snippet and explain each line of it: |
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| 18. | List any five key parameters of GridView and explain any two parameters. |
| 19. | How to add google\_fonts package in flutter project from terminal? Write the code it will add in pubspec.yaml. |
| 20. | What is Scaffold? Analyze and explain following code: |
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Unit-3

| 1. | Write sample code snippet and explain use of MaterialButton. |
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| 2. | What is Provider? Compare Provider with Callback. |
| 3. | Explain major steps for adding and using Provider in a flutter project. |
| 4. | Consider suitable example and design a Dart class extending ChangeNotifier. Discuss required code snippet. |
| 5. | Demonstrate use of “Provider.of” with required code snippet. |
| 6. | Mr. Manoj is learning flutter development. He is struggling with adding dependency in the flutter project. Step-by-step explain, how he can add |

|  | dependency in his flutter project. By mistake, Mr. Manoj has added older version of dependency. How to correct this mistake? Discuss. |
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| 7. | What is the use of “intl” package? Write code snippet and explain use of it. |
| 8. | How to add “uuid” package in your flutter project? With code snippet, exlain use of it. |
| 9. | List different types of Chip widgets. Draw the diagram and explain any two types of Chip widgets. |
| 10. | Your team leader has instructed you to write code for accepting birth date from the user. Which widget is useful to accomplish this requirement. Write code snippet and explain your solution. |
| 11. | Which flutter package is useful if you want to provide color selection in your flutter project? Write code snippet and discuss. |
| 12. | Compare GestureDetector with InkWell. Give appropriate scenarios where one preferred over other. |
| 13. | Write code snippet and explain use of Dismissable widget. |
| 14. | Analyze the following code snippet and explain each line of it: |
| 15. | When to use ChoiceChip and when to use FilterChip? Write necessary code snippet and explain these two widgets. |
| 16. | How to use “Wrap with widget” functionality provided by VS Code? Step by-step explain with suitable example. |
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Unit-4

| 1. | What are shared preferences? Create a flutter app using  pref.getBool(‘darkTheme’) and explain your solution. |
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| 2. | When to use shared preferences? Write Dart code and justify your answer with appropriate example. |
| 3. | Write Dart code for adding required dependency in pubspec.yaml if you want to use shared preferences. Develop flutter app which stores username in shared preferences. Discuss your solution. |
| 4. | Mr. Mahesh is learning flutter. His teacher assigned him a task to store app usage counter in shared preferences. He needs to increment counter value whenever app is launched. Write Dart code and help Mr. Mahesh in developing this demo flutter app. Add necessary comments in your code so that Mr. Mahesh can understand Dart code easily. |
| 5. | Analyze and explain the following code snippet: |
| 6. | Define serialization. Analyze and explain following code snippet: |

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| 7. | What is JSON serialization? Write and explain Dart code demonstrating use of “json\_annotation” and “json\_serializable”. |
| 8. | Analyze the following code snippet and discuss the errors underlined. Write and explain the command to resolve these errors. |
| 9. | How to add json\_serializable dependency in a flutter project? Explain the use of following:  • dart run build\_runner build  • dart run build\_runner build –delete-conflicting-outputs • dart run build\_runner watch  • dart run build\_runner watch –delete-conflicting-outputs |
| 10. | Write Dart code and discuss use of automated JSON serialization using code generation. |
| 11. | Analyze and explain the following code snippet: |

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| 12. | Write and explain Dart code for a flutter application to download data from web API using http package and display on screen. |
| 13. | What is the use of chopper package? Explain at least two advantages of Chopper compare to http package. |
| 14. | Analyze and explain the following code snippet: |
| 15. | Write and explain Dart code to demonstrate use of chopper interceptor. |
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Unit-5

| 1. | With appropriate example and necessary code snippet, explain state management using InheritedWidget. |
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| 2. | What is state management in flutter? Explain advantage and limitation of InheritedWidget. |
| 3. | Analyze and explain use of InheritedWidget from following code snippet: |
| 4. | Explain use of following with respect to provider:  • ChangeNotifier  • ChangeNotifierProvider  • Consumer  • FutureProvider  • MultiProvider |
| 5. | Compare InheritedWidget with Provider and discuss one advantage of each. |
| 6. | What is the use of Consumer with respect to state management using Provider? Write Dart code snippet and explain. |
| 7. | With appropriate example and necessary code snippet, explain use of context.watch<T>(). |
| 8. | With appropriate example and necessary code snippet, explain use of context.select<T, R>(). |
| 9. | When to use of FutureProvider? Analyze and explain following code snippet:  FutureProvider(  create: (context) => createFuture(),  child: <widget>,  ); |

|  | Future<MyModel> createFuture() async {  return Future.value(MyModel());  } |
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| 10. | When to use of MultiProvider? Explain use of MultiProvider with necessary Dart code. |
| 11. | What is ProxyProvider? When to use it? Discuss with appropriate example. |
| 12. | What is the use of ChangeNotifier? Analyze and explain following Dart code: |
| 13. | When to use context.read<T>()? Analyze the following code snippet and explain usage of context.watch<T>(). |
| 14. | What is MultiProvider? When to use MultiProvider? Analyze and explain following Dart code: |

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| 15. | What is the use of ChangeNotifierProvider? Analyze and explain following Dart code: |
| 16. | What is silvers? Analyze following code snippet and explain usage of silvers. |

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| 17. | Analyze the following Dart code and explain context.select<T, R>() and context.read<T>(). |
| 18. | What is the use of ChangeNotifierProxyProvider? Analyze the following code and explain: |

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| 19. | Draw the diagram and explain working of Redux and BLoC. |
| 20. | What is Riverpod? Explain any two limitations of Provider which are solved by Riverpod. |
| 21. | With diagram, explain repository design pattern. Discuss any two scenarios where repository design pattern is suitable. |
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Unit-6

| 1. | What is asynchronous function? Explain any two advantages of stream. |
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| 2. | With appropriate example, explain how to create stream with necessary Dart code snippet. |
| 3. | What is single subscription stream? Explain it with appropriate example and Dart code. |
| 4. | What is broadcast stream? Explain it with appropriate example and Dart code. |
| 5. | Compare and differentiate single subscription streams and broadcast streams. |
| 6. | With appropriate example and necessary code snippet, explain usage of StreamController, Stream, and StreamSink. |
| 7. | What is StreamBuilder? With appropriate example and necessary code snippet, explain usage of StreamBuilder. |
| 8. | With appropriate example and necessary code snippet, explain usage of StreamSubscription. |
| 9. | Analyze and explain following code snippet: |

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| 10. | Analyze following code snippet and explain use of StreamBuilder. |
| 11. | Analyze and explain following code snippet: |

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| 12. | How to store data in SQLite databse using sqflite package? Write Dart code snippet and explain. |
| 13. | How to read data from SQLite databse using sqflite package? Write Dart code snippet and explain. |
| 14. | Analyze and explain following code snippet: |
| 15. | Write necessary Dart code and explain rawInsert() and rawDelete() with respect to sqflite. |
| 16. | Analyze and explain following code snippet: |

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| 17. | What is Moor? Explain any four advantages of Moor. |
| 18. | Analyze and explain following code snippet (with respect to drift): |
| 19. | Analyze and explain following code snippet (with respect to drift): |

| 20. | Step-by-step explain how to set app icon and launch screen in flutter app for deploying on Android platform. |
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| 21. | Step-by-step explain how to set app icon and launch screen in flutter app for deploying on iOS platform. |
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