

- Instructions :**
- (1) All questions are compulsory.
  - (2) Make suitable assumptions wherever necessary and state the assumptions made.
  - (3) Answers to the same questions must be written together.
  - (4) Numbers to the right indicate marks.
  - (5) Draw neat labeled diagrams wherever necessary.
  - (6) Use of Non-programmable calculators is allowed.

1. Attempt the following (any **TWO**) [10]
  - (a) What are adapter classes in Java? Why are they used?
  - (b) Explain the java event delegation model.
  - (c) Write AWT based Java program that will read a number from user (TextBox) and display its factorial (Label).
  - (d) What are the different types of layout in java? Explain BorderLayout.
  
2. Attempt the following (any **TWO**) [10]
  - (a) How can the user be made aware about the software loading process? Which component is facilitating the same? Explain with code specification.
  - (b) What are trees in java swings? Explain how nodes are created in a tree.
  - (c) Write a Java program using swing components to illustrate the use of JSplitPane.
  - (d) Differentiate between AWT and Swings.
  
3. Attempt the following (any **TWO**) [10]
  - (a) Explain Generic servlet and HTTP servlet.
  - (b) Explain the life cycle of a servlet.
  - (c) List various classes of Servlet API. Write the purpose of each.
  - (d) Write a servlet to find the sum of n natural numbers.
  
4. Attempt the following (any **TWO**) [10]
  - (a) What is directive in Java Server Pages? Explain page directives.
  - (b) Describe the drivers used in Java Database Connectivity.
  - (c) Explain the scrollable and updatable result sets in Java Data Base Connectivity.
  - (d) Explain the include and forward action element of JSP.
  
5. Attempt the following (any **TWO**) [10]
  - (a) Explain the life cycle of JSF in detail.
  - (b) Write the benefits of EJB.
  - (c) Explain with suitable example <navigation-rule> element of faces-config.xml file of JSF.
  - (d) Write the code that defines stateless bean which converts an amount from one currency to another.
  
6. Attempt the following (any **TWO**) [10]
  - (a) With suitable diagram explain the architecture of Hibernate.
  - (b) What is the use of Action component of Struts 2? Write and explain various roles of Action component.
  - (c) What is the importance of hibernate mapping file? Explain with suitable example.
  - (d) Explain the application flow of Model-View-Controller architecture in struts framework.

7. Attempt the following (any **THREE**)

[15]

- (a) What is event? List various event classes in Java. Explain any two event classes.
- (b) Create a simple table in swings to display the student details of TYBSc(IT) class.
- (c) Write a servlet program to print the factorial of a given number.
- (d) What is the difference between a traditional JSP page and a JSP document? Quote an example.
- (e) State and explain the different types of Enterprise Java Beans.
- (f) What are interceptors in struts? Explain the execution flow of interceptors.

**Paper Discussion Schedule for all Subjects**

<b>Date</b>	<b>Day</b>	<b>Timing</b>	<b>Centre</b>
23 Oct. 2017	Monday	5.00 p.m. to 7.00 p.m.	Nerul
24 Oct. 2017	Tuesday	9.00 a.m. to 11.00 a.m.	Ghatkopar
24 Oct. 2017	Tuesday	12.00 p.m. to 2.00 p.m.	Thane
24 Oct. 2017	Tuesday	3.00 p.m. to 5.00 p.m.	Dombivli
25 Oct. 2017	Wednesday	9.00 a.m. to 11.00 a.m.	Dadar
25 Oct. 2017	Wednesday	12.00 p.m. to 2.00 p.m.	Andheri
25 Oct. 2017	Wednesday	3.00 p.m. to 5.00 p.m.	Borivali

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