(2 ½ Hours) [Total Marks: 75]

N.B. 1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Illustrations, in-depth answers and diagrams will be appreciated.

4) Mixing of sub-questions is not allowed.

Q. 1 Attempt All

(a) Multiple Choice Questions. (10M)

1)_____ layer is responsible for actually transporting XMLmessages between two computers.
- a) Service Protocol
- b) Service Messaging
- c) Service Transport
- d) Service Description

2) _____ is an XML-based standard for describing, publishing, and finding web services.
- a) SOAP
- b) HTTP
- c) WSDL
- d) UDDI

3) The basic Web Services platform is combination of _____ and _____.
- a) CSS + HTTP
- b) XML + HTML
- c) XML + HTTP
- d) CSS + JAVA

4) SOAP is _____
- a) Simple Object Active Protocol
- b) Sample Object Access Protocol
- c) Sample Object Active Protocol
- d) Simple Object Access Protocol

5) Which of the following is not a valid HTTP method used in RESTful web services?
- a) OPTIONS
- b) DATE
- c) GET
- d) POST

6) Which of the following annotation of JAX RS API is used to annotate a method to get the relative path of the resource class/method?
- a) @Path
- b) @GET
- c) @PUT
- d) @POST

7) URI Stands for _____ .
- a) Unit Resource Identifier
- b) Uniform Representation Identifier
- c) Uniform Resource Identifier
- d) Unified Resource Identifier.

8) Which contract supports Transaction Flow?
   a) Service   b) Operation
   c) Message   d) Data

9) WCF services can communicate with _____.
   a) All programming languages.
   b) XML.
   c) only the languages included with Visual Studio .NET.
   d) multiple platforms and multiple languages.

10) Which one is not a class in WCF?
   a) BasicHttpBinding
   b) BasicHttpContextBinding
   c) BasicHttpsBinding
   d) ClientBinding

(b)   **Fill in the blanks (HTTP, Two , 200, Elements & Attribute, Envelop &**   **(5M)**
   Header, TCP/IP, One, Stub, 300)
     i.   XML Schema Consist of_____.
     ii. RPC provides a _____ on the client side, a separate one for each remote procedure.
     iii. _____protocol is used by RESTful web services as a medium of communication between client and server.
     iv. _____ HTTP Status code means OK, shows success.
     v. The default WCF Request Send/Receive timeout is _____ min(s).

Q. 2   **Attempt the following (Any THREE)**   **(15M)**
(a)   Explain the characteristics of Web Services.
(b)   Explain SOAP web Service in detail.
(c)   Describe the structure of WSDL document.
(d)   What is the Enterprise Service Bus and how does it relate to SOA?
(e)   What is JAX-WS? How it is useful for describing SOAP web services?
(f)   Explain XML Document structure with example.

Q. 3   **Attempt the following (Any THREE)**   **(15M)**
(a)   List and explain the various Http methods required for creating RESTful Web Services.
(b)   Explain annotations used in RESTful web service.
(c)   List and explain any five JAVA frameworks for building RESTful web services.
(d)   Describe the core constraint of RESTful system.
(e)   Explain the characteristics required for Good Resource Representation.
(f)   Write a short note of JSON object and JSON array.

Q. 4   Attempt the following (Any THREE)   (15M)

(a)   What is Windows Communication Foundation (WCF)? Explain the Features of WCF in detail.

(b)   Write a note on Quality of Service (QoS) for Webservices.

(c)   Giving example, explain how to define a Windows Communication Foundation Service Contract.

(d)   Describe Windows Communication Foundation Architecture in Detail.

(e)   What do you mean by Operation Contract? Explain in detail.

(f)   Explain different tasks that are required to build a WCF application

Q. 5   Attempt the following (Any FIVE)   (15M)

(a)   Write a short note on the Client-Server model.

(b)   What is the use of XML schema?

(c)   Write about the characteristics of Inter-process communication in brief.

(d)   Write a note on HTTP basic authentication.

(e)   What is Swagger?

(f)   List the advantages and disadvantages of Statelessness.

(g)   What are WCF's ABC?

(h)   Write about Endpoint in WCF.