DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VI [COMPUTER ENGINEERING]
SUBJECT: (CE-627) WEB SERVICE DEVELOPMENT

Examination : Regular
Date : 25/04/2025
Time : 10.00 to 1.00pm

Seat No : 103
Day : Friday
Max. Marks : 60

INSTRUCTIONS:

1. Answer each section in separate answer book.
2. Figures to the right indicate maximum marks for that question.
3. The symbols used carry their usual meanings.
4. Assume suitable data, if required & mention them clearly.
5. Draw neat sketches wherever necessary.

SECTION – I

Q.1 **Do as directed.** **[10]**

CO1	N	(a)	Identify two service orientation principles related to the statement given below: "Units of logic in SOA exist autonomously yet not isolated from each other."	[2]
CO1	R	(b)	Which two basic steps are required for a service A to communicate with a service B in service oriented architecture?	[2]
CO1	A	(c)	Give example to prove the statement: "Vendor diversity is supported by contemporary SOA."	[2]
CO1	N	(d)	Differentiate with example: "Service provider entity vs. service provider agent"	[2]
CO1	A	(e)	State true or false with justification:"An intermediary can also be initial sender or ultimate receiver within scope of service activity".	[2]

Q.2 **Attempt *Any TWO* from the following questions.** **[10]**

CO2	C	(a)	What is the purpose of ABC in WCF? Write and explain configuration code for a host application to support your answer.	[5]
CO2	C	(b)	Write code of a WCF service which supports CRUD operations for Order management system using data contract.	[5]
CO2	C	(c)	When message contract is preferred over data contract for a WCF web service? Describe the use of message contract with example code.	[5]

Q.3 **[10]**

CO4	N	(a)	Identify and list the microservices required to build an e-commerce application. What are the major benefits of adopting microservices over a monolithic design for this application?	[5]
CO4	C	(b)	Design and implement two separate APIs for cab booking system: customer profile management and booking management. Use the Ocelot API Gateway to route user requests to the appropriate API endpoints. Define models and implement basic GET methods for both APIs, along with the configuration for the ocelot.json file.	[5]

OR

Q.3 **[10]**

CO4	N	(a)	Write major characteristics of microservices architecture. Compare microservices with monolithic design with respect to resilience and scaling.	[5]
CO4	C	(b)	Design two separate APIs for an online shopping system: product management and order management. Utilize Ocelot API Gateway to route user requests to the appropriate API endpoints. Define models and implement basic GET methods for both APIs, along with the configuration for the ocelot.json file.	[5]

SECTION – II

Q.4		**Do as directed.**		**[10]**
CO1	**N**	(a)	State the difference between business entities and business services for UDDI.	[2]
CO1	**U**	(b)	Mention the purpose of storing following information in SOAP header blocks for "Invoice Submission" service: Correlation information, Security information	[2]
CO1	**R**	(c)	Diagrammatically describe complex service activity scenario involving web services of any two organizations.	[2]
CO1	**A**	(d)	What type of data can be stored in coordination context created by the activation service? Give two examples.	[2]
CO1	**N**	(e)	Justify: "Operational granularity is a primary design consideration to achieve the principle of abstraction."	[2]

Q.5		**Attempt *Any TWO* from the following questions.**		**[10]**
CO3	**A**	(a)	What is REST? List and explain four REST principles.	[5]
CO3	**A**	(b)	Write and explain the code of a Web API controller to handle CRUD operations for online movie ticket booking system.	[5]
CO3	**A**	(c)	Why DTO concept is preferred in Web API? Support your answer with DTO based code for "book" model of online bookstore.	[5]

Q.6				**[10]**
CO5	**C**	(a)	What is the purpose of Dockerfile? Write and explain a docker file which contains FROM, RUN and CMD instructions.	[5]
CO5	**U**	(b)	Explain the following features of kubernetes in detail: scheduling, self-healing, Rollout and Rollback, Scaling, Resource utilization.	[5]

OR

Q.6				**[10]**
CO5	**C**	(a)	Diagrammatically describe container's lifecycle with examples of commands related to container management.	[5]
CO5	**U**	(b)	Explain the following features of kubernetes in detail: node, namespace, pod, replica set, services.	[5]