

Name:	
Enrolment No:	

UPES

End Semester Examination, December 2024

Programme Name: BCA (AI-ML and Cyber-Security)	Semester : V
Course Name : Microservices & Containerization	Time : 03 hrs.
Course Code : CSBC3020P	Max. Marks: 100
Nos. of page(s) : 02	

Instructions: Please attempt according to the provided time and given weightage.
There are three sections in the question paper, each section has it's own instruction.

SECTION A

Attempt all questions

(30 Marks) 6 Questions – Each 5 Marks – No choice – Attempt all questions

S.No.	Question	Marks	CO
Q 1	List the constraints of the REST architecture.	5	CO1
Q 2	Differentiate between virtual machines and microservices.	5	CO2
Q 3	Illustrate the need of containerization.	5	CO3
Q 4	Justify the statement, “We cannot remove entirely the virtual machine-based implementation by container-based implementation”.	5	CO3
Q 5	Compare the architectures of two container orchestration services.	5	CO4
Q 6	Summarize different types of web APIs.	5	CO1

SECTION B

(50 Marks) 6 Questions – Each 10 Marks – Attempt any 5 questions out of 6.

Q 7	Compare and contrast among Monolithic, Microservices and Service oriented architectures.	10	CO2
Q 8	Create an ecommerce app by incorporating microservices.	10	CO4
Q 9	Illustrate two techniques of hybrid communication with one example case for each.	10	CO2
Q 10	List the different security challenges for microservices applications.	10	CO1
Q 11	Illustrate the difference between Docker Swarm and Kubernetes, with their individual advantages.	10	CO3
Q 12	Visualize of the difference among volumes, bind mounts, and tmpfs mount along-with their functioning in terms of container storage.	10	CO2

SECTION C

(20 Marks) 2 Questions- Each 20 Marks- Attempt any 1 question out of 2.

Q 13	Illustrate Container Orchestration, its working, and its benefits in the context of container services.	20	CO3
Q 14	Explain in brief, about the following network drivers in context of network functionality- a. host b. none c. overlay d. ipvlan e. macvlan	20	CO4