Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December-2021
Data Base Management System [CS-503]
Branch-CS

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions. All questions carry equal marks.

Q.1 (a) What is Data independence? Why is it essential.
(b) Discuss in details about primary file organization.

Q.2 (a) Explain about various constrains used in E-R model.
(b) Why the concurrency control is needed explain it.

Q.3 (a) Explain in detail about internal hashing techniques.
(b) Differentiate multivalued dependency and join dependences.

Q.4 Differentiate between:
(a) Generalization and specialization
(b) Physical and logical data independence

Q.5 Draw an E-R diagram for a banking enterprise with almost all components and explain.

Q.6 (a) What is lossless decomposition in database? How it is useful in database.
(b) Explain the concept of query optimization.

Q.7 (a) Explain following commands with syntax
(i) Select (ii) Update (iii) Delete
(b) Differentiate between DML, DDL, and DCL in detail.

Q.8 Write short notes on (Any three) –
(i) Concurrency control
(ii) Multivalued dependences
(iii) Various key in DBMS
(iv) Distributed database
(v) DBMS Architecture

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December 2021
Computer Graphics & Multimedia [CS-504]
Branch-CSE

Time: 3:00 Hrs **Max Marks 70**

Note: Attempt any five questions. All questions carry equal marks.

Q.1 (a) Explain the working of CRT with the help of diagram give the function of each components of CRT.
(b) Differentiate between
i) raster scan Vs random scan
ii) Beam penetration Vs shadow mask CRT

Q.2 (a) Define world coordinate system and screen coordinate system.
(b) Derive expression for converting RGB color parameter to HSV values ?

Q.3 (a) Define multimedia ? Write down the characteristics of multimedia presentation
(b) Write down various audio components of an audio system. and various video file format.

Q.4 (a) Describe different types of authoring tools.
(b) What are the different animation techniques ?

Q.5 (a) Describe an illustrative example of procedural techniques why are such techniques useful in computer animation ?
(b) What are the advantages and disadvantages of loses compression ?

Q.6 (a) Derive a method to reflect a 3D object about an arbitrary plane.
(b) What are the properties associated with curve ? Explain significance of each of them.

Q.7 Write short notes on:-
i) Multimedia arch facture.
ii) Z-Buffer Algorithm
iii) HSV color model

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December 2021
Theory of Computation [CS-505]
Branch: CSE

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions out of eight.
All question carry equal marks.

Q.1 (a) Explain finite automation and its various types.

(b) Design DFA that accepts all string with of most 3a's?

Q.2 (a) Distinguish between Moore and melay machine.

(b) Define ambiguity and CFG.

Q.3 Explain Myhill Nerode theorem with example.

Q.4 (a) State and prove the pumping lemma theory of regular language.

(b) Define two way finite automata with suitable example.

Q.5 (a) Define less most derivation, right most derivation and parse tree with suitable example.

(b) Convert the following grammar into GNF.

$S \longrightarrow AA/0$

$A \longrightarrow SS/1$

Q.6 (a) Explain multi tape and universal turning machine.

(b) Design Turing machine to add two numbers a and b.

Q.7 (a) What do you mean by derivation trees ? Give examples.
(b) Explain vertex cover problem briefly.

Q.8 Write short notes (Any three)

i) Halting problem ii) NP complete Vs NP hard
iii) CNF iv) NPDA
v) Travelling sales man problem .

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December-2021
Data Communication [CS-501]
Branch: CSE

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions.
2. All question carry equal marks.

Q.1 (a) Explain briefs about block codes.
(b) Explain about lassy and lasslen data compression techniques.

Q.2 (a) Discuss about synchronous and statistical TDM.
(b) Explain the principle of direct sequence spread spectrum techniques.

Q.3 (a) Compare and contrast RJ45 and RJ 11.
(b) Draw and define circuit, message and packet switching techniques.

Q.4 Discuss the functions of following networking device.
(i) Gateways (ii) Active and passive hubs (iii) Repeaters

Q.5 (a) Explain X.25.
(b) Give and overview of different transmission media. Classify and compare them.

Q.6 Define the following terms :
(i) Distortion (ii) Wave attenuation (iii) Skip distance

Q.7 (a) What do you mean by Hamming weight of a code and humming distance of two code find Hamming weight and hamming distance for following codes.
$C_1 = 11110000$
$C_2 = 10101010$
(b) What do you mean by Convection codes? Explain with suitable examples.

Q.8 Write short notes on any two of the followings:
(i) Purity checking (ii) Digital subscriber line (iii) Satellite communication (iv) MODEM

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December 2021
Operating System [CS-502]
Branch-CS

Time: 3:00 Hrs **Max Marks 70**

Note: (i) Attempt any five questions.
(iii) Assume suitable data if necessary & state them clearly.

Q.1 (a) Define an operating system what are the gools of an operating system? Explain.
(b) Explain the concept of buffering and spooling .

Q.2 (a) Discuss the essential properties of time sharing and distributed system?
(b) Define system call?

Q.3 (a) What is file system and what are the various file access methods ? Explain.
(b) Explain any two solutions of recovery from deadlock.

Q.4 (a) What are semaphores ? Explain Binary and counting Semaphores with an example ?
(b) Explain in detail about various ways of free space management.

Q.5 (a) What is thread ? What resources are used when a threat is created. ?
(b) Explain FIEO and LRU page replacement algorithm in details.

Q.6 (a) What is segmentation ? Explain virtual to physical address mapping in a segmentation system with the help of a diagram.
(b) Write a program to implement remote procedure call (RPC) .

Q.7 (a) Write short note on :-
i) virtual memory ii) Resource allocation graph.
iii) Multitasking Vs multiprogramming. O.S.