

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fourth Semester)

Branch – **INFORMATION TECHNOLOGY**

RDBMS Using Oracle

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. _____ executes low-level instructions generated by the DML compiler.

(i) DDL Interpreter	(ii) DML Compiler
(iii) Query Evaluation Engine	(iv) Query Optimization
2. _____ is a set of one or more attributes that allow us to identify uniquely a tuple in the relation.

(i) Primary Key	(ii) Foreign Key
(iii) Candidate Key	(iv) Super Key
3. Nested Query is also called as _____.

(i) Subquery	(ii) Exact Subquery
(iii) Vector Subquery	(iv) Positive Subquery
4. _____ is an ordered list of contents of a column or group of columns in a table.

(i) Index	(ii) Views
(iii) Sequence	(iv) Grouping
5. Oracle loads the compiled function in the memory area called SGA to execute the code quickly. _____.

(i) PGA	(ii) SGA
(iii) UGA	(iv) none of the above

SECTION - B (15 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

- 6 a. Briefly explain about different types of Database Users.
OR
b. Write short notes on various components of the Storage Manager.
- 7 a. Mention various binary operations of Relational Algebra.
OR
b. Explain in detail about major components of E-R Diagrams.
- 8 a. Specify many faces of the Select command.
OR
b. How will you join a table to itself?

Cont...

- 9 a. Explain about conditional & iterative control in PL/SQL.
OR
b. Explain about Union, Intersect and Minus clause in SQL.
- 10 a. Write a PL/SQL program to generate students mark details along with a solution.
OR
b. Explain about Different types of triggers.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a. Illustrate in detail about Database Architecture.
OR
b. Describe in detail about Relational Databases.
- 12 a. Specify all the symbols used in the UML class diagram Notation.
OR
b. Describe in detail about BCNF.
- 13 a. Discuss in detail about NULL value, Default value and to check integrity constraints in Data Constraints.
OR
b. Enumerate in detail about Views in SQL.
- 14 a. Describe in detail about cursors in PL/SQL.
OR
b. Discuss in detail about Stored Procedures in PL/SQL.
- 15 a. Explain in detail about Database Triggers in PL/SQL.
OR
b. Explain in detail about stored functions.

Z-Z-Z

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - INFORMATION TECHNOLOGY

DATA ANALYSIS AND VISUALIZATION USING PYTHON

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which of the following is a valid data type in Python? (a) String (b) Tuple (c) List (d) All of these	K1	CO1
	2	What does the pass statement do in Python? (a) Ends a function (b) Skips the execution (c) Comments code (d) None	K2	CO1
2	3	Which keyword is used to create a function in Python? (a) func (b) define (c) def (d) lambda	K1	CO1
	4	What is the result of 5 // 2 in Python? (a) 2.5 (b) 2 (c) 3 (d) Error	K2	CO1
3	5	Which method is used to remove all elements from a dictionary? (a) del() (b) clear() (c) pop() (d) empty()	K1	CO2
	6	ZIP lists are used to: (a) Create tuples (b) Merge lists (c) Remove duplicates (d) Sort dictionaries	K2	CO2
4	7	Pandas series can be created from: (a) Lists (b) Dictionaries (c) Numpy Arrays (d) All of the above	K1	CO3
	8	Which of the following method is used to transpose data frames in Pandas? (a) T() (b) transpose() (c) shift() (d) reverse()	K2	CO4
5	9	Which library is used for data visualization? (a) Numpy (b) Pandas (c) Matplotlib (d) Scipy	K1	CO5
	10	Which plot would you use to show data distribution? (a) Bar plot (b) Line plot (c) Histogram (d) Scatter plot	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a	Explain Python's data types and give examples.	K2	CO1
	OR			
	11.b	Describe Python's control flow statements like if, else, and elif.		

Cont...

2	12.a	Write a Python program to demonstrate the use of functions.	K3	CO1
	OR			
	12.b	Explain the role of functions in Python with an example of recursion.		
3	13.a	How do you create and manipulate dictionaries in Python? Provide examples.	K3	CO2
	OR			
	13.b	Explain file operations such as reading and writing in Python.		
4	14.a	What are data frames? Write a Python code to create one.	K4	CO4
	OR			
	14.b	Describe the process of transposing a data frame. Give an example.		
5	15.a	Create a line plot using matplotlib to visualize sample data.	K6	CO5
	OR			
	15.b	How would you visualize categorical data using a bar plot in Python?		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module	Q. No	Question	K Level	CO
1	16	a.Explain the significance of Python's control flow statements with suitable examples. b. Discuss how functions and modularity improve the software development process.	K3	CO1
2	17	Compare lists, tuples, and dictionaries. Analyze scenarios where each data structure is the best choice.	K4	CO2
3	18	a.What are the different file modes available in Python for reading and writing files? b. Write a Python program to log error messages into a text file.	K4	CO3
4	19	Describe the process of handling missing data in a data frame. How would you decide whether to fill or drop missing values?	K5	CO4
5	20	a. What are the key differences between a bar plot and a pie chart? b. Discuss the best practices for choosing the right visualization type for categorical data.	K6	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch – INFORMATION TECHNOLOGY

CORE JAVA PROGRAMMING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which feature of Java makes it possible to run a Java program on different platforms? a) compiler b) platform independent c) syntax d) object oriented	K1	CO1
	2	Which control structure is used to execute a block of code multiple times? a) IF b) try c) for d) catch	K2	CO1
2	3	Which keyword is used to implement inheritance between classes? a) extends b) inheritsfrom c) implements d) inherits	K1	CO2
	4	What is the access modifier for a class within a package that allows it to be accessed by any other class? a) private b) protected c) public d) default	K2	CO2
3	5	Which of these is a superclass of all exception types in Java? a) try b) runtime exception c) catch d) throwable	K1	CO3
	6	Which of the following method is used to find out the priority given to a thread ? a) getpriority() b) getthreadpriority() c) get() d) threadpriority()	K2	CO3
4	7	Which of this class is super class of all the events? a) EventClass b) EventObject c) ActionEvent d) ItemEvent	K1	CO4
	8	Which class is used to display images in Java Swing? a) JButton b) JRadioButton c) JTextArea d) JLabel	K2	CO4
5	9	Thin driver also known as _____. a) Type-1 Driver b) Type-3 Driver c) Type-2 Driver d) Type-4 Driver	K1	CO5
	10	What is JDBC in Java? a) Java DataBase Connectivity b) Java DataBase Connection c) Java DataBase Connector d) Java DataBase Class	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain a variable and its uses with necessary examples.	K2	CO1
	(OR)			
	11.b.	Explain the different methods used for comparing strings in Java.		
2	12.a.	Identify the working procedure of method overriding.	K3	CO2
	(OR)			
	12.b.	Construct a Java program with using an interface.		
3	13.a.	Identify the key concepts of nested try statement in Java.	K3	CO3
	(OR)			
	13.b.	Plan to create your own exception with simple Java program.		
4	14.a.	Examine the different event classes with an example.	K4	CO4
	(OR)			
	14.b.	Test for the importance of following controls in Swing. (i) Text Fields (ii) Buttons		
5	15.a.	Analyze JDBC connectivity with an example.	K4	CO5
	(OR)			
	15.b.	Classify the different types of JDBC drivers.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Classify the different types of operators in Java with an examples.	K4	CO1
2	17	Analyze the importance of package in Java.	K4	CO2
3	18	Discover the need for try and catch keywords in exception.	K4	CO3
4	19	Examine the various event handling mechanisms available in Java.	K4	CO4
5	20	Analyze the JDBC package.	K4	CO5

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)
Branch – **INFORMATION TECHNOLOGY**
OPERATING SYSTEMS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry **EQUAL** marks

$$(10 \times 1 = 10)$$

Module No.	Question No.	Question	K Level	CO
1	1	A _____ can be used to prevent a user program from never returning control to the operating system. a) portal b) program counter c) firewall d) timer	K1	CO1
	2	Which one of the following is the deadlock avoidance algorithm? a) throughput b) response time c) process output d) turnaround time	K2	CO1
2	3	Which of the following algorithms tends to minimize the process flow time? a) FCFS b) SJF c) EDF d) LJF	K1	CO2
	4	_____ is the deadlock avoidance algorithm. a) Round Robin b) Ostrich c) Banker's d) Eelvator	K2	CO2
3	5	Which of the following is not a contiguous memory management technique? a) partition b) over lays c) both (a) and (b) d) paging	K1	CO3
	6	Which of the following field in a page table entry indicates which page frame of memory is occupied by the page? a) page table b) invalid bit c) page frame d) valid bit	K2	CO3
4	7	A single parity bit can be used for : a) multiple error correction b) detection c) few error correction d) swap	K1	CO4
	8	Expand RAID. a) Redundant Access of Inexpensive Disks b) Redundant Arrays of Information Disks c) Redundant Arrays of Inexpensive Disks d) Redundant Access of Information Disks	K2	CO4
5	9	Which file attribute is used to access control information determines who can do reading, writing, executing? a) protection b) type c) identifier d) name	K1	CO5

Cont...

5	10	The lowest level, the I/O control, consists of _____ and interrupt handlers to transfer information between the main memory and the disk system. a) disk drive c) file allocation	b) virtual memory d) device driver	K2	CO5
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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry **EQUAL** Marks

$$(5 \times 7 = 35)$$

Module No.	Question No.	Question	K Level	CO
1	11.a.	What is an operating system? Explain System calls.	K1	CO1
	(OR)			
	11.b.	What are the basic operations involved in an operating system?		
2	12.a.	Classify the importance of the First-Come, First-Served (FCFS) scheduling algorithm.	K2	CO2
	(OR)			
	12.b.	Explain the Banker's algorithm with example.		
3	13.a.	Demonstrate the structure and usage of a page table.	K2	CO3
	(OR)			
	13.b.	Summarize the concepts of memory compression.		
4	14.a.	Examine the working principles of HDD scheduling algorithm.	K4	CO4
	(OR)			
	14.b.	Analyze the importance of swap space management.		
5	15.a.	Categorize the structure of directories.	K4	CO5
	(OR)			
	15.b.	Analyze the various operations of a file system.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks

$$(3 \times 10 = 30)$$

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the various services provided by an operating system.	K4	CO1
2	17	Examine the strategies employed for deadlock prevention in operating systems.	K4	CO2
3	18	Examine the need for demand paging.	K4	CO3
4	19	Discover how error correction is implemented in an operating system.	K4	CO4
5	20	Analyze the various services of free space management.	K4	CO5

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)**

Branch - **INFORMATION TECHNOLOGY**

FUNDAMENTALS OF DIGITAL COMPUTERS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	1's complement can be easily obtained by using _____ a) Comparator b) Inverter c) Adder d) Subtractor	K1	CO1
	2	The addition of +19 and +43 results as _____ in 2's complement system. a) 11001010 b) 101011010 c) 00101010 d) 111110	K2	CO1
2	3	According to boolean law: $A + 1 = ?$ a) 1 b) A c) 0 d) A'	K1	CO2
	4	$A(A + B) = ?$ a) AB b) 1 c) (1 + AB) d) A	K2	CO2
3	5	If A and B are the inputs of a half adder, the sum is given by _____ a) A AND B b) A OR B c) A XOR B d) A EX-NOR B	K1	CO3
	6	A digital multiplexer is a combinational circuit that selects _____ a) One digital information from several sources and transmits the selected one b) Many digital information and convert them into one c) Many decimal inputs and transmits the selected information d) Many decimal outputs and accepts the selected information	K2	CO3
4	7	Latch is a device with _____ a) One stable state b) Two stable state c) Three stable state d) Infinite stable states	K1	CO4
4	8	Ripple counters are also called _____ a) SSI counters b) Asynchronous counters c) Synchronous counters d) VLSI counters	K2	CO4
5	9	A register is able to hold _____ a) Data b) Word c) Nibble d) Both data and word	K1	CO5
	10	The ROM is a _____ a) Sequential circuit b) Combinational circuit c) Magnetic circuit d) Static circuit	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Describe BCD system with an example.	K2	CO1
		(OR)		
	11.b.	Explain computer register with an example.		
2	12.a.	Demonstrate Demorgan's theorem with example.	K3	CO2
		(OR)		
	12.b.	Simplify the equation $F = xyz + xyz' + xy'z + x'yz + x'y'z$ using k-map.		
3	13.a.	Interpret the principles of half adder with neat diagram.	K4	CO3
		(OR)		
	13.b.	Examine the functions of multiplexer with diagram.		
4	14.a.	Develop a truth table to demonstrate jk flip-flop with diagram.	K3	CO4
		(OR)		
	14.b.	Identify the characteristics of counters.		
5	15.a.	Distinguish cache memory and virtual memory.	K4	CO5
		(OR)		
	15.b.	Inference asynchronous data transfer with diagram.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyse the characteristics of Binary, Octal and Hexadecimal number system.	K4	CO1
2	17	Inference the working principles of Product of Sum	K4	CO2
3	18	Evaluate encoders and decoders with diagram.	K4	CO3
4	19	Analyse shift register with neat diagram.	K4	CO4
5	20	Examine the principles of DMA with neat diagram.	K4	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fourth Semester)

Branch – INFORMATION TECHNOLOGY

SOFTWARE ENGINEERING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 _____ maintenance is usually required for porting the software to work in a new environment.
(i) Corrective (ii) Intuitive
(iii) Adaptive (iv) Perfective
- 2 A module is said to possess _____ cohesion, if different processes of the module co-operate to complete a single task.
(i) Communicational (ii) Functional
(iii) Sequential (iv) Procedural
- 3 The different users of the system are represented in use case by using _____.
(i) Ellipses (ii) Circles
(iii) Rectangles (iv) Stick person icons
- 4 Degree to which the product meets the requirements is called as _____.
(i) Reliability (ii) Conformance
(iii) Durability (iv) Serviceability
- 5 _____ encompasses innate talent, specific software-related skills, and overall knowledge of the process that the team has chosen to apply.
(i) Competence (ii) Common focus
(iii) Collaboration (iv) Decision-making ability

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Contrast on Programs versus Products.
OR
b List out Notable Changes in Software Development Practices.
- 7 a Summarize about Formal System Specification
OR
b Compare the Approaches of Software Design.
- 8 a Analyze about the function of State Chart Diagram.
OR
b Write about Types of User Interfaces.

Cont...

- 9 a Produce the importance of Unit testing.
OR
b Take part in the modern view of a quality factors associates with a software product.
- 10 a Predict the Estimation of Maintenance Cost in Software Maintenance.
OR
b Determine about the human factors involved in agile process.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a Demonstrate on Classical Waterfall Model.
OR
b Bring the importance of Spiral Model.
- 12 a Classify on Coupling.
OR
b Provide your Overview Opinion of the Design Process.
- 13 a Summarize about Developing the DFD Model of a System.
OR
b Elaborate on Basic Object-Oriented Concepts.
- 14 a Appraise about Testing.
OR
b Organize a note on Software Reliability.
- 15 a Interpret about Software Maintenance Process Models.
OR
b Inspect about Extreme Programming in Agile Development.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch - INFORMATION TECHNOLOGY

MAJOR ELECTIVE COURSE – I : MOBILE COMPUTING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which of these is required for the transmission of digital information by translating it into analogue signals via a particular frequency?
(i) BSPK (ii) QPSK
(iii) Modulation (iv) Demodulation
- 2 Expand IVR
(i) Initial Vocal Response (ii) Interactive Voice Response
(iii) Interactive Vocal Response (iv) Initial Voice Response
- 3 Which of the following does not come under subsystem of GSM architecture?
(i) BSS (ii) NSS
(iii) OSS (iv) Channel
- 4 GPRS can also called _____ network.
(i) 2G (ii) 2.5G
(iii) 3G (iv) 3.5G
- 5 Which of the following is the 802.11 High Rate Standard?
(i) IEEE 802.15 (ii) IEEE 802.15.4
(iii) IEEE 802.11g (iv) IEEE 802.11b

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Summarize the evolution of wireless PAN.
OR
b How to define Ubiquitous computing?
- 7 a Outline the functionalities of low medium orbit satellite.
OR
b What do you mean by SDMA?
- 8 a Describe GSM entities.
OR
b Outline various strength of SMS.
- 9 a. Describe channel coding in GPRS.
OR
b comment user agent in WAP.
- 10 a Describe about IEEE 802.11 standards.
OR
b Distinguish Ad-hoc and infrastructure mode.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

- 11 a Discuss various applications of mobile computing.
OR
b Explain the functions of transaction processing middleware.
- 12 a Illustrate Bluetooth protocol stack with diagram.
OR
b Determine working principles of RFID.
- 13 a Examine the components of GSM addresses and identifiers.
OR
b Evaluate the functions of SMMT& SMMO.
- 14 a Interpret various modes in GPRS data services.
OR
b Analyse 3G specific applications with example.
- 15 a. Inference various types of WLAN.
OR
b Enumerate the key principles of AES.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch - INFORMATION TECHNOLOGY

PHP & MySQL

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1) Which syntax is default in PHP?
i) <?php ?> ii) <% %> iii) <? ?> iv) <script language="php">
- 2) PHP variables are preceded by _____.
i) _ ii) @ iii) \$ iv) &
- 3) The practice of separating the user from the true inner workings of an application through well-known interfaces is known as _____.
i) Polymorphism ii) Inheritance
iii) Encapsulation iv) Abstraction
- 4) The practice of creating objects based on predefined classes is often referred to as _____.
i) class creation ii) object creation
iii) object instantiation iv) class instantiation
- 5) The _____ statement is used to delete a table in MySQL.
i) DROP TABLE ii) DELETE TABLE
iii) DEL TABLE iv) REMOVE TABLE

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6) a) Explain the structure of PHP programming.
OR
b) Determine the use of PHP version compatibility.
- 7) a) Summarize the different types of array functions.
OR
b) Illustrate the process of retrieve and submit data in form.
- 8) a) How will you create a cloning objects in PHP? Give example.
OR
b) Outline the methods used for generators.
- 9) a) Highlight the process of destroying a cookie.
OR
b) Discuss the benefits of Just-In-Time compilation.
- 10) a) Show the types of keys to relational databases.
OR
b) Elaborate the steps to create a login file.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11) a) Discover the different types of operators in PHP with example.
OR
b) Enumerate the syntax and example of while loop statement.
- 12) a) Discuss the use of date and time functions with example.
OR
b) Examine the purpose of regular expressions in PHP.
- 13) a) Identify the attributes and operations in PHP.
OR
b) Conclude the declaration of abstract classes with example.
- 14) a) Elaborate the storing usernames and passwords using HTTP authentication.
OR
b) Assume the methods for match expressions in PHP 8.
- 15) a) Compare and construct the first normal form with second normal form.
OR
b) Elucidate the commit and rollback transactions with example.

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch – INFORMATION TECHNOLOGY

COMPUTER NETWORKS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

1. Which of the following is NOT a reference model in networking?
(i) OSI Model (ii) TCP/IP Model
(iii) ISO Model (iv) Hybrid Model
2. Which of the following is a common method for error detection in the Data Link Layer?
(i) Packet switching (ii) Cyclic Redundancy Check (CRC)
(iii) Data encapsulation (iv) Frequency modulation
3. Which of the following is a common routing algorithm used in networks?
(i) Cyclic Redundancy Check (ii) Dijkstra's Algorithm
(iii) Carrier Sense Multiple Access (iv) Time Division Multiple Access
4. What is the primary function of the Transport Layer in the OSI model?
(i) To provide end-to-end communication between applications (ii) To manage data transmission over physical media
(iii) To handle routing and forwarding of packets (iv) To establish and maintain network connections
5. What is the primary purpose of Domain Name System?
(i) To route data packets between networks (ii) To convert domain names into IP addresses
(iii) To encrypt email communications (iv) To manage network traffic and bandwidth

SECTION - B (15 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 3 = 15)

6. a) Explain about the Network Hardware.
OR
b) Write short notes on the Network Standardization.
7. a) Explain the Design issues in the data link layer.
OR
b) Discuss about the Sliding window Protocols.
8. a) Write short notes about the Quality of service in the Network Layer.
OR
b) Write about the Network layer design issues.

Cont...

9. a) Explain the Transport Service in detail?
OR
b) Describe the Performance issues in the TCP ?
10. a) Write short notes on Multimedia?
OR
b) Discuss about the Web Security?

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11. a) Explain in detail about the Guided Transmission media.
OR
b) Discuss about the Wireless Transmission in brief.
12. a) Explain in detail about the Error Detection and Correction in the data link layer.
OR
b) Summarize the Multiple Access Protocols.
13. a) Categorize the Internetworking in the Network layer.
OR
b) Discuss about the Congestion Control Algorithms in detail.
14. a) Classify the UDP in detail.
OR
b) Discuss about the TCP in brief.
15. a) Analyze the www.
OR
b) Explain about the DNS in detail.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch – INFORMATION TECHNOLOGY

CRYPTOGRAPHY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 In which security model, system is secure simply because nobody knows about its existence and contents?
(i) No Security (ii) Security through Obscurity
(iii) Host Security (iv) Network Security
- 2 DES encrypts blocks of ____ bits
(i) 32 (ii) 56
(iii) 64 (iv) 128
- 3 Requesting for a certificate results into the creation of a ____ file.
(i) PKCS#7 (ii) PKCS#9
(iii) PKCS#10 (iv) PKCS#12
- 4 SSL layer is located between ____ and ____.
(i) transport layer, network layer (ii) application layer, transport layer
(iii) data-link layer, physical layer (iv) network layer, data-link layer
- 5 Firewall is a specialized form of a ____
(i) bridge (ii) disk
(iii) printer (iv) router

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Explain the salient features of the modern nature of attacks.
OR
b Compare substitution and transposition ciphers.
- 7 a How does the one-time initialization step work in AES?
OR
b State the idea behind meet-in-the-middle attack.
- 8 a Describe the advantages and disadvantages of symmetric and asymmetric-key cryptography.
OR
b. Summarize the attacks are attempted by attackers on RSA digital signatures.
- 9 a Comparison between static web page and dynamic web page.
OR
b Classify the various types of Biometric techniques in detail.
- 10 a Sketch and explain the basic concepts of TCP/IP protocol suite.
OR
b Explain the application and advantages of IPSec.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

- 11 a Summarize the principles related to the security.
OR
b Highlight the steps involved in Play fair encryption scheme.
- 12 a Categorize the different types of algorithm mode in detail.
OR
b Explain the principles of the IDEA algorithm.
- 13 a Point out the idea and requirement of Message Digest.
OR
b. Outline the several steps involved in digital certificate creation process.
- 14 a Justify the various sub protocols constitute the overall working with SSL.
OR
b Identify the steps to clear the text password.
- 15 a Examine the different types of firewall in network.
OR
b Categorize the various types Audit records and Intrusion Detection Systems in detail.

Z-Z-Z

END

PSG COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Fourth Semester)

Branch - INFORMATION TECHNOLOGY

MICROPROCESSOR & MICRO CONTROLLER

Time: Three Hrs

Maximum Marks: 75

Section A (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (25 x 1=25)

1. a. The Intel 8085 is an _____-bit microprocessor introduced by Intel in 1977
(i) 4 (ii) 8 (iii) 16 (iv) 2
- b. Which signal is used to reset the microprocessor by setting the program counter to zero.
(i) RESET IN (ii) RESET OUT (iii) INTA (iv) None
- c. Abbreviate SID
- d. The address bus in the 8085 microprocessor is _____-bit wide
- e. In 8085 microprocessor, _____ refers to the time taken to execute a basic operation, such as reading or writing from memory or fetching an opcode
- f. Define ADI
- g. STA is a _____-byte instruction
(i) 1 (ii) 2 (iii) 4 (iv) 3
- h. An _____ mode in a microprocessor defines the way in which the operand (data) is specified for an instruction
(i) Addressing (ii) Instruction (iii) Data (iv) None
- i. What does JNC do ?
- j. RRC Stands for _____
- k. How many types of interfaces are used in the 8085 microprocessor?
(i) 4 (ii) 2 (iii) 6 (iv) 3
- l. The 8085 executes the _____ instruction in three machine cycles and it takes ten T States (Clock Periods) to complete the execution
- m. I/O Devices are also Known as _____
- n. A Seven segment LED Consist of Seven light emitting diode segments and _____ Segment for the decimal point.
- o. _____ Mode is used set or reset the bits in port C
- p. In MCS-51 devices have separate address space a for Program and Data Memory - . (True / False)
- q. The Program Memory can be up to _____ K bytes long
(i) 32 (ii) 16 (iii) 64 (iv) 8
- r. The MCS-51 instruction set is optimized for _____ bit control applications
- s. Which addressing the instruction specifies a register which contains the address of the operand
(i) Direct (ii) Indirect (iii) Immediate (iv) None
- t. The Carry bit in the _____ is used as the single-bit Accumulator of the Boolean processor.
- u. The 8051 provides how many interrupt sources
(i) 4 (ii) 5 (iii) 3 (iv) 8
- v. The _____ Port Interrupt is generated-by the logical-OR of RI and TI.
- w. In this mode 0, the Timer register is configured as a _____-bit register
(i) 10 (ii) 12 (iii) 14 (iv) 13
- x. Abbreviate EOF
- y. The 8051 has Built in Universal Asynchronous Receiver Transmitter. (True / False)

Cont...

Section B (20 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 4=20)

2 a. Discuss about the Registers in detail.

Or

b. Illustrate about Bus Organization.

3 a. Explain about Addressing Modes.

Or

b. Write a Assembly Language Program for 8 Bit Addition.

4 a. Elaborate about Interfacing Input Devices.

Or

b. Explain about Memory Mapped I/O .

5 a . Write a Brief Notes on SFR.

Or

b . Explain about Boolean Processing.

6 a. Explain about Interrupt Priorities in detail.

Or

b. Discuss about Timer and its Types.

Section C (30 Marks)

Answer **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10=30)

7. Elucidate about 8085 Microprocessor with Diagram.

8. Discuss about the Instruction Set in Detail with Example.

9. Illustrate about Seven Segment LED Display as an Output Device with Diagram.

10. Elaborate about 8051 Micro controller Block Diagram with its functions.

11. Discuss about Counter and Serial Communication in detail.

Z-Z-Z END