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**PGIIS-1276 B-17**  
**M.C.A. IIIrd Semester Degree Examination**  
**Computer Science**  
**(Software Engineering)**  
**Paper : MCA - 3.1**

Time : 3 Hours

Maximum Marks : 80

***Instructions to Candidates:***

- 1) *Answer any five questions.*
- 2) *Each question carries equal marks.*

1. a) Explain the software myths and software crisis. (8)  
b) Explain the layered technology used in software engineering (8)
2. a) What is software process model? Outline the major steps involved in an incremental model. (8)  
b) If the prototype model is being used in a developmet effort, is it necessary to develop on SRS document? Justify your answer. (8)
3. a) Using schematic diagram show the order in which the following are estimated while using COCOMUestimation technique : cost, effort, duration and size. (8)  
b) What are the relative advantages of using either the LOC or the funciton point metric to measure the size of a software product. (8)
4. a) How are the abstraction and decomposition principles used in developing a good software requirement specification (8)  
b) Explain differnet communications techniques used in Analysis? (8)
5. a) What are use cases? Explain how to develop effective use cases. (8)  
b) Name and explain the various elements of the analysis model. (8)

6. a) Explain the taxonomy of architectural styles. (8)  
b) Explain in detail the optimization in architectural design. (8)
7. a) Describe the various incremental integration testing techniques. (8)  
b) Explain the basis path testing and its use in the design of test cases with an example. (8)  
Draw the control flow graph and identify the independent paths (8)
8. Write short notes on the following : (4×4=16)
- a) ISO 9001 : 2000 quality standard
  - b) Empirical estimation models
  - c) Behavioral modeling
  - d) Functional modeling



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**PGIIS-1277 B-17**  
**M.C.A. IIIrd Semester Degree Examination**  
**Computer Science**  
**(Data Communication and Computer Networks)**  
**Paper : MCA - 3.2**

Time : 3 Hours

Maximum Marks : 80

***Instructions to Candidates:***

*Answer any five questions. Each question carries equal marks.*

1. a) List out the various principle characteristics of Data communication system, Explain each one of them briefly. (8)  
b) Compare and contrast services, interfaces and protocols of computer network. (8)
2. a) What are digital signals and digital devices? Explain with suitable examples. (8)  
b) Determine the required band width when the chanel capacity varies from 5mbps to 10 mbps and SNR valve is 30 dB. (8)
3. a) Define multiplexing explain the various multiplexing techniques with suitable examples. (8)  
b) Briefly Explain importance of data link protocols communication system. (8)
4. a) Discuss the various sources of data link layer and network layer. (8)  
b) Describe the merits and demerits of various switching techniques. (8)
5. a) Compare and contrast LAN, WAN, and WAN with various parameters. (8)  
b) Explain the importance of different physical media with suitable examples. (8)
6. a) Explaiin the architecture of ISO/OSI reference model with neat diagram. (8)  
b) Define socket, explain various system calls of connection oriented and connection less services. (8)

7. a) Explain the security requirements and attacks with suitable examples. (8)  
b) Discuss the services of transport layer and session layer. (8)
8. Write short notes : (any four) (4×4=16)
- a) Ipv4 & Ipv6
  - b) Digital signature
  - c) Client / Server model
  - d) High speed LANs
  - e) Routing protocols





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**PGIIS-1278 B-17**  
**M.C.A. IIIrd Semester Degree Examination**  
**Computer Science**  
**(Computer Graphics)**  
**Paper - MCA 3.3**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates:**

- i) Answer any *five* questions.
- ii) Each question carries *equal* marks.

1. a) What is computer Graphics? Explain the various hardwares used for computer Graphics. (8)  
b) What is modelling? Explain the heirarchy in Geometric modeling (8)
2. a) Write the midpoint line conversion algorithm. (8)  
b) Explain the procedure involved in filling rectangle. (8)
3. a) What is polygon clipping? Explain the polygon clipping algorithm. (8)  
b) Discuss the 2D geometrical transformations used in computer Graphics. (8)
4. a) Explain the composition of 2D transformations (8)  
b) Discuss briefly the Hermite curves (8)
5. a) What is polygon meshes? Discuss any three polygon mesh representation. (8)  
b) Discuss briefly any two color models. (8)
6. a) What is solid modeling? Explain the boundary representation in solid modeling. (8)  
b) Write the pseudo code for z - buffer algorithm. (8)
7. a) What is visible surface determination? Explain the algorithm for visible line determination. (8)

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(8)

(2×8=16)

b) Discuss briefly interpolation shading.

8. Write short notes on any two

a) SRGP

b) Bazier curves

c) Area sub division algorithm



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**PGIIS-1279 B-17**  
**M.C.A. IIIrd Semester Degree Examination**  
**Computer Science**  
**(Design and Analysis of Algorithms)**  
**Paper : MCA - 3.4**

Time : 3 Hours

Maximum Marks : 80

***Instructions to Candidates:***

*Answer any five questions. All question carry equal marks.*

1. a) Define an algorithm. Explain the characteristics of an algorithm and the methods of designing. (8)  
b) What are the asymptotic notation used for the efficiency class of an algorithm? Explain with suitable example. (8)
2. a) What are recursive and non - recursive algorithm? Explain the general plan for analysing non - recursive algorithm. (8)  
b) Develop an algorithm for element uniqueness problem. Analyse it's efficiency class. (8)
3. a) What is the brute force approach? Explain closest pair problem and design and algorithm for its by using brute force approach. (8)  
b) Develop an algorithm to sort the array by using selection sort technique and obtain it's time complexity. (8)
4. a) What is divide and conquer technique? Write a psuedo - code for a divide and conquer algorithm for finding a position of the largest element in an array of n numbers. (8)  
b) Design divide and conquer algorithm to search an element in a sorted array. (8)
5. a) Explain decrease and conquer algorithm to sort the given array of n numbers. Discuss it's time complexity. (8)  
b) Describe Gauss elimination method of solving the system of equations and develop an algorithm for it. (8)

6. a) Develop an algorithm for finding the binomial co-efficient by using decrease and conquer technique (8)
- b) Define transitive closure of a graph. Write an algorithm for obtaining transitive closure of a graph. Obtain it's efficiency class. (8)
7. a) Explain P, NP and NP complete problems. (6)
- b) Design Greedy algorithm to obtain single source shortest path. (10)
8. Write short notes on any two of the following : (8+8)
- a) Fourier transform & its inverse
- b) Horner's Rule
- c) Merge sort





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**PGIIS-1280 B-17**  
**M.C.A. IIIrd Semester Degree Examination**  
**Computer Science**  
**(Visual Programming)**  
**Paper : MCA - 3.5**

Time : 3 Hours

Maximum Marks : 80

***Instructions to Candidates:***

- i) Answer any five questions.*
- ii) All question carries equal marks.*

1. a) Enlist the components of .NET explain any four components briefly. (8)  
b) Explain how .NET framework supports the creation of web application with an example. (8)
2. a) Explain how .NET can be used to support web services. (8)  
b) Briefly explain variable declaration in VB.NET (8)
3. a) Briefly discuss arrays in VB.NET (8)  
b) With suitable example explain conditional statement in VB.NET (8)
4. a) Discuss passing variable member of arguments in VB.NET. (8)  
b) Discuss forms in VB.NET (8)
5. a) Briefly discuss event handling with suitable example. (8)  
b) Explain types of inheritance. (8)
6. a) With suitable example explain overloading. (8)  
b) Briefly explain basic concepts of object oriented programming. (8)
7. a) Compare ADO and ADO.NET (8)  
b) Briefly explain ADO.NET object model. (8)

8. Write short notes on the following :

(4×4=16)

- a) OLEDB
- b) SQLDB
- c) Crystal report
- d) Data bound controls



**PGIIS-N 1551 B-17**  
**M.Sc. IIIrd Semester (CBCS) Degree Examination**  
**COMPUTER SCIENCE**  
**(Information Technology)**  
**Paper : OET 3.1**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

- i) *Section - A is compulsory*
- ii) *Answer any Five questions from section - B*

**Section - A**

1. Answer the following questions (10×2=20)

- a) List any two differences between LAN and WAN
- b) What is MAC address?
- c) What are the uses of GOPHER?
- d) Give differences between websites and portals
- e) How to insert a video in HTML file?
- f) List DOM methods.
- g) What is Web hosting?
- h) How software agents function?
- i) Who are the stakeholders in different E - Commerce business models?
- j) What is digital token?

**Section - B**

2. a) Discuss different network topologies (6)
- b) What is IP address? What are its classes? Discuss. (6)





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**PGIIS-N-1550 B-17**  
**M.Sc. IIIrd Semester Degree Examination**  
**COMPUTER SCIENCE**  
**(Computer Graphics)**  
**Paper : SCT 3.1**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

- i) *Section A is compulsory.*
- ii) *Answer any Five questions from section B.*

**SECTION - A**

1. Answer the following questions. (10×2=20)
- a) What is mean by clipping?
  - b) Which shading method is faster and easier? Why?
  - c) State the difference between shadow and transparency.
  - d) List the applications of computer graphics.
  - e) Write an importance of homogeneous coordinates in computer graphics?
  - f) What is viewing?
  - g) What is flat shading?
  - h) Define the RGB.
  - i) Give the limitations or shadow techniques.
  - j) Discuss VDU.

**SECTION - B**

2. a) Discuss the important differences or local and global illumination. (6)
- b) Consider a raster system with the resolution of 1024×768 pixels and color palette calls for 65,536 colors. What is the minimum amount of video RAM. (6)

3. a) Differentiate Anisotropic and isotropic surfaces. (6)  
b) Describe why local models are easy to implement in hardware than global model. (6)
4. a) Discuss the terms:  
basic function, geometry matrix, control point, convex hull. (6)  
b) What is transformation? Explain the 3-D transformation. (6)
5. a) Explain the following terms: (6)  
i) Visible surface identification  
ii) Solid modeling  
b) Discuss in detail the process of composition 2D and 3D transformation. (6)
6. a) Explain the procedure to produce image by iterated method. (6)  
b) Describe in detail the perspective projection. (6)
7. a) What is raster? Explain in detail the sample raster graphics package (SRGP). (6)  
b) Discuss in brief the z-buffer algorithm. (6)
8. Write notes on any two of the following. (2×6=12)  
a) Scan-line algorithm.  
b) Transparency.  
c) Polygon meshes.  
d) Tick primitives.



**PGIIS-N 1548 B-17**  
**M.Sc. IIIrd Semester Degree Examination**  
**COMPUTER SCIENCE**  
**(Programming in Java)**  
**Paper - HCT - 3.1**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates.**

- 1) Section A is compulsory
- 2) Answer any five questions from section B.

**Section - A**

Answer the following questions.

**(10×2=20)**

- 1)
  - a) Enlist the basic concepts object oriented programming
  - b) Write a syntax for break and continue statement
  - c) Write the difference between final class and final function
  - d) What is data encapsulation
  - e) Write the difference between constructor & destructor
  - f) What is garbage collection & in Java
  - g) What is uncaught exception?
  - i) Define thread in Java
  - j) List any two functions of Event classes
  - k) What is Interface?

**Section - B**

- 2)
  - a) Explain branching statement in Java with example **(6+6)**
  - b) Discuss Access Modifiers in Java
- 3)
  - a) How multiple inheritance is achieved in Java. Explain **(6+6)**

- b) Explain exception handling mechanism in Java
- 4) a) Briefly discuss Applet life cycle. (6+6)  
b) Explain the steps involved in executing an applet.
- 5) a) What is thread? Discuss thread life cycle (6+6)  
b) Briefly discuss Ruter thread communication.
- 6) a) What is an I/O streams? Explain the hierarchy of the streams in Java. (6+6)  
b) Develop a Java program to create a file consisting of strings and read from the file.
- 7) a) Briefly discuss AWT class hierarchy. (6+6)  
b) Explain Event handling mechanism in Java
- 8) Write short notes on any Two of the following (2×6=12)  
a) JDBC connectivity  
b) Servlet life cycle  
c) RMI  
d) Packages in Java.
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**PGIIS-N-1549 B-17**  
**M.Sc. IIIrd Semester Degree Examination**  
**COMPUTER SCIENCE**  
**(Data Communication and Computer Networks)**  
**Paper : HCT 3.2**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

- i) *Section A is compulsory.*
- ii) *Answer any Five questions from section B.*

**Section-A**

1. Answer the following questions. (10×2=20)
- a) What is point to point line configuration
  - b) State the fundamental characteristics of data communication system
  - c) Find the even parity for the data bits 1111010
  - d) What is a repeater
  - e) What is packet switching network?
  - f) What is a Router
  - g) Define demultiplexing
  - h) State why UDP is required
  - i) What is http? Where it is used
  - j) Differentiate between plain text and cipher text

**Section-B**

II. Answer any Five questions. Each question carries 12 marks

2. a) Explain star and ring topologies. Mention their merits and demerits (6)

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- b) Describe the line coding process used for converting digital data to digital signals (6)
3. a) Illustrate LRC method with an example (6)  
b) Describe Go-Back-N ARQ protocol (6)
4. a) Explain datagram packet switching (6)  
b) Illustrate the distance vector routing with an example (6)
5. a) Explain Time Division multiplexing(TDM) (6)  
b) Explain the Leaky Bucket algorithm. What is DNS (6)
6. a) Why DNS is required? Explain its significance (6)  
b) Explain the functions of FTP with a neat diagram (6)
7. a) What is cryptography? Explain symmetric key cryptography (6)  
b) Describe how proxy firewall is used for security in the internet. (6)
8. Write notes on any two of the following (2×6=12)  
a) RS 232 interfacing sequences  
b) HDLC  
c) IP addressing  
d) WWW

