(PGDCA01)

Total No. of Questions : 10] **[Total No. of Pages : 01**

P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018

COMPUTER APPLICATIONS

Information Technology

Time : 3 Hours **Maximum Marks :70**

Answer any Five questions.
All questions carry equal marks. ***(5 × 14 = 70)***

Q1) Discuss about information technology infrastructure with example.

Q2) Explain classification of information systems and evaluation of information systems.

Q3) Explain about different types of software's with examples.

Q4) Explain about different types of primary storage and their working mechanism.

Q5) Write about various input and output devises of computer.

Q6) Discuss various components of database management systems.

Q7) Write about different communication providers and communication protocols.

Q8) Describe the Ethernet and TCP/IP protocols.

Q9) Explain about internet and intranet challenges with examples.

Q10) Explain the following terms with respect to internet:

a) Home page
b) IP address
c) DNS
d) www

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(PGDCA02)

Total No. of Questions : 10] **[Total No. of Pages : 01**

P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018
COMPUTER APPLICATIONS
Programming with C++

Time : 3 Hours **Maximum Marks :70**

Answer any Five questions.
All questions carry equal marks. **(5 × 14 = 70)**

Q1) a) Compare C and C++ programming languages.
b) Describe different classification of operators and their precedence.

Q2) Write short notes on the following:
a) this pointer
b) const qualifier
c) Pointers to class members

Q3) What are the advantages of using functions? Explain function proto typing and parameter passing mechanisms.

Q4) Explain about different types of constructors. Explain how constructors and destructors are executed.

Q5) What is array? How to create one and two dimensional arrays? Write a C++ program to addition of two matrices.

Q6) Discuss various string operations and string handling functions.

Q7) Write a note on the visibility of inherited members based on private, public and protected derivations.

Q8) a) What is polymorphism? Explain the static and dynamic binding in this.
b) What is operator overloading? List the operator overloading restrictions.

Q9) a) Explain inline functions with suitable example.
b) What is template? How to create class template? Explain with example.

Q10) Explain about vectors and container classes.

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(PGDCA03)

Total No. of Questions : 10] **[Total No. of Pages : 01**

P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018

COMPUTER APPLICATIONS

Computer Organisation

Time : 3 Hours **Maximum Marks :70**

Answer any Five questions.
All questions carry equal marks. ***(5 × 14 = 70)***

Q1) Explain about structural and functional view of digital computer.

Q2) Explain the features of intel x86, embedded systems and ARM processors.

Q3) Explain about instruction fetch, execute and I/O function.

Q4) Explain about PCI bus structure and data transfer.

Q5) Write about magnetic read/write mechanism and disk layout.

Q6) Explain about various optical disk products and their working mechanism.

Q7) Explain Booth multiplication algorithm for multiplying binary integers in signed 2's complement representation.

Q8) Derive and explain an algorithm for adding and subtracting two floating point binary numbers with suitable example.

Q9) Explain about processor modes and register organization in ARM processor.

Q10) Discuss about various states in instruction cycle with neat diagram.

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(PGDCA04)

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P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018

COMPUTER APPLICATIONS

Data Structures

Time : 3 Hours **Maximum Marks :70**

Answer any Five questions.
All questions carry equal marks. ***(5 × 14 = 70)***

Q1) a) Discuss Big (O), Omega(Ω) and Theta (θ) notations with suitable example.

b) What is sparse matrix? How to represent sparse matrix in memory.

Q2) a) What is algorithm? Write an algorithm to solve the quadratic equation.

b) Write a program to insertion and deletion operation in linear arrays.

Q3) Write about different string storage structures with suitable example and also mention different string processing operations.

Q4) How to represent records and pointer arrays in computer memory? Explain with suitable example.

Q5) Write a procedures of various stack operations. Valuate the following postfix expression using stack:

a) 9 3 4 * 8 + 4 / -

b) 5 6 2 + * 1 2 4 / - +

Q6) What is a Queue? Write down drawback of simple queue. Also write an algorithm for deleting an element from circular queue.

Q7) Explain about B-trees and AVL trees with suitable example.

Q8) Write about in-order, post-order and pre-order traversing techniques. Given In-order and Pre-order traversal, find Post-order traversal.

In-order traversal : 4, 2, 5, 1, 3, 6

Pre-order traversal : 1, 2, 4, 5, 3, 6

Q9) Write about quick sort algorithm. Apply quick sort algorithm to sort the following data. Justify the steps : 42, 29, 74, 11, 65, 58.

Q10) Explain about insertion sort algorithm with suitable example.

(PGDCA05)

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P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018
COMPUTER APPLICATIONS
Operating Systems

Time : 3 Hours **Maximum Marks :70**

Answer any five questions.
All questions carry equal marks. ***(5 × 14 = 70)***

Q1) Explain about various services of operating systems

Q2) Explain various thread models in detail. Write their advantages

Q3) Compose FCFS, SJF and round robin algorithms by computing average waiting time. There are 5 processes with CPU burst time as 10, 5, 17, 25, 6 and arrival times are 0, 1, 3, 2, 7 units. Assume time quantum for round robin scheduling as 5.

Q4) Explain Dining Philosopher problem in process synchronization.

Q5) State clearly four necessary conditions for deadlocks to occur. Explain Banker's algorithm for deadlock avoidance.

Q6) What is meant by paging? Write about the techniques for structuring the page table.

Q7) Discuss the advantages of paging memory management and the conversion of logical address into physical address with necessary hardware

Q8) Discuss the schemes for defining the logical structure of a directory.

Q9) Explain the various disk scheduling techniques.

Q10) What is virus and worm? How the operating system protected from worms and virus?

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(PGDCA06)

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P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018
COMPUTER APPLICATIONS
Data Base Management Systems

Time : 3 Hours **Maximum Marks :70**

Answer any five questions.
All questions carry equal marks. ***(5 × 14 = 70)***

Q1) a) Explain about different classifications of information systems.
b) Write about conventional file processing system and also give its limitations.

Q2) Discuss different associations between files with appropriate example.

Q3) Explain about the following inter record data structures:
a) Queue data structure
b) Ring data structure
c) Multi - list data structures.

Q4) Explain about hierarchical data model and relational data models with example.

Q5) What is normal form? Discuss about various normal forms with suitable example.

Q6) Explain about the guidelines for mapping conceptual data model to hierarchical and network models.

Q7) What is IMS? Explain about IMS database description and IMS data manipulation.

Q8) Discuss various commands of data manipulation language.

Q9) Write about relational calculus commands with proper syntax and example.

Q10) Explain about concurrency control mechanism.

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(PGDCA07)

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P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018

COMPUTER APPLICATIONS

Accounts & Finance

Time : 3 Hours **Maximum Marks :70**

Answer any five questions.

All questions carry equal marks. ***(5 × 14 = 70)***

Q1) Bring out the limitations of ratio analysis.

Q2) Explain the components of working capital.

Q3) Classify costs with examples.

Q4) What are the uses for the preparation of ratio analysis?

Q5) Differentiate between funds flow and cash flow statement.

Q6) Explain the methods of preparing trial balance.

Q7) Explain accounting concepts and conventions.

Q8) From the following particulars you are required to prepare Journal and Ledger.

2008 Jan. 1 : Madan & Co started a business with Rs. 5,00,000/- machinery Rs. 45,000/-
2008 Jan. 3 : Purchase of goods from Aravind Rs. 45,000/-
2008 Jan. 7 : Sale of goods to Krishna & Co Rs. 46,000/-
2008 Jan. 10 : Goods return to Aravind Rs. 5,000/-
2008 Jan. 12 : Payment of wages Rs. 2,000/-
2008 Jan. 16 : Rent paid Rs. 3,000/-
2008 Jan. 20 : Advertisement Rs. 1,500/-
2008 Jan. 25 : Goods purchased Rs. 15,000/-
2008 Jan. 26 : Cash sales Rs. 76,000/-
2008 Jan. 30 : Sale of machinery Rs. 8,000/-

Q9) The following is the Trial Balance of Mr. Raghava & Co as on 31st March, 2010. Prepare Profit and Loss account and Balance Sheet for the year ended 31st March, 2010

TRIAL BALANCE

Particulars	**Debit Rs.**	**Credit Rs.**
Capital		5,00,000
Creditors		1,50,000
Debtors	25,000	
Machinery	1,75,000	
Cash in hand	2,00,000	
Cash at bank	1,00,000	
Sales		4,50,000
Debentures		1,50,000
Purchases	2,00,000	
Rent	10,000	
Wages	15,000	
Carriage inwards	10,000	
Advertising	20,000	
Buildings	5,45,000	
Loan from SBI		2,00,000
Bills Payable		50,000
Opening stock	2,00,000	
Total	15,00,000	15,00,000

Adjustments

a) Closing Stock – Rs. 1,50,000.
b) Prepaid Advertisement – Rs. 5,000.

Q10) On 31-1-2007 the Pass Book of Priyanka Showed a Debit Balance of Rs. 41,000. Prepare Bank Reconcilation statement with the following information.

a) Cheques amounting to Rs. 15,600 were drawn on 27th Jan 2007 out of which cheques for Rs. 11,000 were cashed upto 31-1-2007.

b) A wrong Debit of Rs. 800 has been given by the bank in Pass Book.

c) A Cheque for Rs. 200 was credited in Pass Book but was not recorded in Cash Book.

d) Cheque amounting to Rs. 21,000 were deposited for collection. But cheques for Rs. 7,400 have been credited in Pass Book on 5th Feb. 2007.

e) A cheque for Rs. 1,000 returned dishonoured and was accounted for in Cash Book.

f) Interest and Bank Charges amounted to Rs. 100 and were not accounted for in Cash Book.

g) A Cheque of Rs. 500 Debited in the Cash Book omitted to be banked.

h) A wrong debit has been given by the cashier for Rs. 500 in the Cash Book.

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(PGDCA08)

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P.G. DIPLOMA DEGREE EXAMINATION, DECEMBER – 2018

COMPUTER APPLICATIONS

Computer Graphics

Time : 3 Hours **Maximum Marks :70**

Answer any FIVE questions.

All questions carry equal marks. ***(5 × 14 = 70)***

Q1) Consider a line from (0,0) to (6,7). Using simple DDA algorithm, rasterize this line.

Q2) What is graphic package? What are the components of graphic package?

Q3) Clip the line using Cohen-Sutherland algorithm against window with (X_{wmin}, Y_{wmin}) = (0,0) and (X_{wmax}, Y_{wmax})= (100,50). Line end points are A(10, 10) and B(110, 40).

Q4) What is 2D shear transformation? Convert the unit square to shifted parallelogram using x-direction shear transformation operation where parameter Shx = ½ and Yref = –1 and unit square dimensions are (0, 0), (1, 0), (0, 1) and (1, 1).

Q5) Describe the matrix formulation of 2D Translation, Scaling and Rotation.

Q6) Write about various graphic input devices with neat sketches.

Q7) Explain Working principle of Plasma Panel Display and CRT monitors.

Q8) Discuss about segmented display files.

Q9) What is a 3-d projection? Explain with neat diagram. Compare the parallel and perspective projections?

Q10) What is an event? Discuss about event handling mechanism in computer graphics.

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