

**(PGDCA01)**

**Total No. of Questions : 10]**

**[Total No. of Pages : 01**

**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2017**

**COMPUTER APPLICATIONS**

**Information Technology**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any five questions**

**All questions carry equal marks**

- Q1)** Discuss interrelation between business and information technology in global world.
- Q2)** Explain the impact of IT industries in modern organizations.
- Q3)** State and explain different components of digital computers with neat sketch.
- Q4)** Explain about the various input and output devices with neat sketches.
- Q5)** Discuss about different system softwares and application softwares with suitable examples and also describe how to create software programs.
- Q6)** What is operating system? Discuss various operating systems and its features.
- Q7)** Explain various ways to manage the data and information.
- Q8)** Explain in detail about LAN, WAN, CAN and MAN's.
- Q9)** What is modem? Explain different types of modems? What factors should you consider when purchasing modems?
- Q10)** Briefly explain about the following:
- a) WWW
  - b) E-mail
  - c) Internet

**(PGDCA02)**

**Total No. of Questions : 10]**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2017**

**Computer Applications**

**Programming with C++**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any five questions**

**All questions carry equal marks**

- Q1)** Explain the different characteristics of object-oriented programming.
- Q2)** What are the advantages of having call-by-reference over call-by-value?  
Write a C++ program to interchange two float values using call-by-reference.
- Q3)** Explain dynamic memory allocation and deallocation of arrays using example.
- Q4)** What is constructor? Explain the characteristics of constructor's also different types of constructors.
- Q5)** How to create a class and an object in C++. Explain about accessing member functions with an example.
- Q6)** Illustrate operator overloading with suitable example.
- Q7)** What is inheritance? Demonstrate different types of inheritance with suitable example.
- Q8)** What are virtual functions? With an example explain the need for virtual function.
- Q9)** Explain class templates and function template with example.
- Q10)** a) Differentiate early and late binding.  
b) Briefly explain about streams.



**(PGDCA03)**

**Total No. of Questions : 10]**

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**PG DIPLOMA DEGREE EXAMINATION, MAY - 2017**

**Computer Applications**

**Computer Organisation**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any five questions**

**Each question carries equal marks**

- Q1)** Explain about the functional view of the computer with neat sketch and also different possible operations.
- Q2)** Explain in detail about Embedded systems and ARM.
- Q3)** Explain about benefit of using a multiple-bus architecture compared to a single-bus Architecture.
- Q4)** Explain about instruction cycle state diagram with neat sketch.
- Q5)** Discuss the mechanism and characteristics of optical disk.
- Q6)** Explain about different RAID levels.
- Q7)** Perform the following Integer Arithmetic operations with example:  
a) Addition  
b) Subtraction  
c) Division
- Q8)** Write about essential elements of a number in floating-point notation.
- Q9)** Explain in detail about x86 Processor Family Interrupt Processing.
- Q10)** Discuss about indirect cycle and data flow and they are related to each other.



**(PGDCA04)**

**Total No. of Questions : 10]**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY - 2017**

**COMPUTER APPLICATIONS**

**Data Structures**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any five questions**

**All questions carry equal marks**

- Q1)** Explain about arrays and structures with suitable example.
- Q2)** a) What is pointer? Describe advantages and disadvantages of pointers?  
b) Describe any five string handling functions?
- Q3)** Explain about circular queue, priority queue and de-queue's with suitable example.
- Q4)** How to create node in double linked list? Explain about different operations of double lined list.
- Q5)** What is Recursion? Illustrate how the stack is used to implement recursion with example.
- Q6)** Implement stack operations using single linked list and also describe the applications of stacks.
- Q7)** Consider the following list elements: 67, 12, 89, 26, 38, 45, 22, 79, 53, 9, 61 sort these elements using selection sort.
- Q8)** Explain about sub-routine of merge sort with suitable example.
- Q9)** Draw a binary search tree whose elements are inserted in the following order: 50, 70, 90, 93, 100, 20, 10, 12, 9, 25, 51, 15, 95 and also describe tree operations.
- Q10)** Explain about different searching techniques with example.



**(PGDCA05)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY – 2017**

**COMPUTER APPLICATIONS**

**Operating Systems**

**Time : 3 Hours**

**Maximum Marks : 70**

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**Answer any Five questions**  
**All questions carry equal marks**

**[5 × 14 = 70]**

- Q1)** Explain the system components in operating system structure in detail.
- Q2)** a) What is scheduling? Describe different types of scheduling.  
b) State and describe different types of process states.
- Q3)** Explain about critical regions and monitors.
- Q4)** Explain Banker's algorithm for deadlock avoidance.
- Q5)** Explain about the techniques for structuring the page table.
- Q6)** Explain briefly about Readers/Writers problem in classical synchronization implement using critical section.
- Q7)** Explain the FIFO, Optimal and LRU page replacement algorithm for the reference string.  
1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6.
- Q8)** Explain the three major methods of allocating disk spaces in detail with suitable examples.
- Q9)** Discuss in detail about file allocation methods and describe different file attributes.
- Q10)** Discuss about various security issues in operating systems.



**(PGDCA06)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY – 2017**

**COMPUTER APPLICATIONS**

**Database Management Systems**

**Time : 3 Hours**

**Maximum Marks : 70**

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*Answer any Five questions  
All questions carry equal marks*

- Q1)** What is information system? Discuss components of information system and classify different information systems.
- Q2)** Write in detail about sequential, indexed sequential and random file organizations.
- Q3)** Discuss different location methods and types of pointers of the data.
- Q4)** What is data model? Briefly explain different data models with neat sketch.
- Q5)** What is need of normalization? Explain the normalization of invoice and REORDER report.
- Q6)** Describe the guidelines for mapping conceptual data model into relational data model and network data model.
- Q7)** Discuss DML and DDL command of integrated database management systems.
- Q8)** Explain about relational algebra operations with example.
- Q9)** Write about resource locking and deadlock embrace in concurrency control.
- Q10)** What is meant by database recovery? Explain about forward and backward recovery.

**(PGDCA07)**

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P.G. DIPLOMA EXAMINATION, MAY – 2017

COMPUTER APPLICATIONS  
(Paper – VII) : Accounts & Finance

Time : 3 Hours

Maximum Marks: 70

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Answer any five questions

All questions carry equal marks

- Q1) Explain double entry system of book keeping.
- Q2) Discuss cost classification with examples.
- Q3) Explain the functions of finance.
- Q4) Differentiate between funds flow analysis and cash flow analysis.
- Q5) Explain the advantages of ratio analysis.
- Q6) What are the determinants of working capital?
- Q7) What are the advantages of bank reconciliation statement?
- Q8) From the following trial balance prepare trading and profit and loss account for the year ended 31<sup>st</sup> Mar 2010.

Particulars	Debit	Credit
	Rs.	Rs.
Opening stock	51,000	-
Capital		72,000
Purchases	2,50,000	
Sales		4,00,000
Carriage inwards	12,000	

Wages	50,000
Salaries	26,000
Commission	3,000
Bad debts	2,000
Insurance	4,000
Rent, Rates and Taxes	12,000
Postage and telegram	2,800

**Q9)** From the following details you are required to make an assessment of the average amount of working capital requirement of Fine Drinks Limited.

	Average period of credit	Estimate for the first year  Rs.
Purchase of material	6 weeks	26,00,000
Wages	1½ weeks	19,50,000
Overheads:		
Rent, rates, etc.	6 months	1,00,000
Salaries	1 month	8,00,000
Other overheads	2 months	7,50,000
Sales	Cash	2,00,000



Credit sales	2 months	60,00,000
Average amount of stocks and work-in-progress		4,00,000
Average amount of undrawn profit		3,00,000

It is to be assumed that all expenses and income were made at even rate for the year.

**Q10)** During the year the following transactions took place in the business

Dates	Particulars	Amount (Rs.)
October 1	Commenced business with cash	40,000
2	Purchased goods on credit from Shyam	30,000
3	Paid Gopalan an advance for goods ordered	2,000
4	Received cash from Murthy as advance for goods ordered by him	3,000
5	Purchased furniture for goods for office use for cash	2,000
6	Paid wages	500
7	Goods returned to Shyam	10,000
8	Goods sold to Kamal	2,000
9	Paid Postage and Telegrams	1,000
10	Withdrew cash for personal use	1,000

x      x      x

**(PGDCA08)**

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**P.G. DIPLOMA DEGREE EXAMINATION, MAY – 2017**

**COMPUTER APPLICATIONS**

**Computer Graphics**

**Time : 3 Hours**

**Maximum Marks : 70**

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*Answer any Five questions  
All questions carry equal marks*

- Q1)** Plot a circle using mid-point algorithm whose radius = 3 and center is at (0, 0).
- Q2)** Explain about different 2 – D transformations with their matrix representations.
- Q3)** What is meant by polygon clipping? Illustrate Sutherland – Hodgeman polygon clipping algorithm.
- Q4)** State and write in detail about different geometric models.
- Q5)** Explain about windowing and view port with example.
- Q6)** Describe different steps to display file compilation.
- Q7)** Discuss about graphical input devices with neat sketches.
- Q8)** Explain about solid area scan conversion with suitable example.
- Q9)** Explain about raster scan display and random scan display.
- Q10)** Discuss different application areas of computer graphics and animations.

