ORDINANCES
AND OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
(ANNUAL)

2015 & 2016 EXAMINATIONS

DEPARTMENT OF COMPUTER SCIENCE
J.S. University
Shikohabad
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PGDCA-11: INTRODUCTION TO INFORMATION TECHNOLOGY

Maximum Marks : 80
Minimum Pass Marks : 40%

Lectures to be delivered : 40-50
Time allowed : 3 Hrs.

A) Instructions for paper-setters

The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non programmable scientific calculator is allowed.

SECTION-A

Historical Evolution of Computer: characterisation of computers, types of computers, the computer generations.
Basic Anatomy of Computers: memory unit, input-output unit, arithmetic logic unit, control unit, central processing unit, RAM, ROM, PROM, EPROM.
Input-Output Devices: punched hole devices, magnetic media devices, printers, keyboard, scanners, other devices such as plotters, voice recognition and response devices, off-line data entry devices.

SECTION-B

Number System: non-positional and positional number systems, base conversion, fractional numbers, various operations on numbers.
Computer Code: computer words, characters data, weighted and non weighted code, BCD, EBCDIC, ASCII, grey code.
Boolean Algebra and Logic Circuit: Boolean algebra, Boolean functions, logic gates.

SECTION-C

Computer Software : Introduction, types of software, systems software, GUI, operating system, high level languages, assemblers, compilers and interpreters, system utilities, application packages, stages in the development of software, program testing and debugging, program documentation, concept of firmware.

SECTION-D

Networking: Basics, types of networks (LAN, WAN, MAN), hardware and software for LAN and WAN, topologies, Information, data processing, Data base concepts, database redundancy, inconsistency, difficulty in accessing the data, concurrent access anomalies, security problem, integrity of data.

Text Books :
1. Vishal Goyal, Lalit Goyal, Pawan Kumar, A Simplified Approach to Data Structures, Shroff Publications.

References :
PGDCA-12 : Operating Systems

Maximum Marks : 80
Minimum Pass Marks : 40%

Lectures to be delivered: 40-50
Time allowed : 3 Hrs.

SECTION-A
Introduction to operating System: Need of operating system, operating system services, Definition, Early systems
Types of operating systems: Batch processing operating system, Multiprogramming operating system, Time Sharing operating system, Multi tasking operating system, Distributed operating system, Network operating system, Real time operating system, Multi processor System and parallel processing.

SECTION-B
Disk Operating System (DOS): Booting process of DOS, Purpose of autoexec.bat and config.sys, internal commands and external commands, using wild card characters, Creating batch files, getting and setting date, time and prompt, Disk related commands-Format, Fdisk, Chkdsk, Scandisk, Defrag.

SECTION-C
Windows: GUI, Icon, Toolbar.
Working with files, closing and saving a file.
Mouse Mechanics-Click, Double click, Drag and drop method.
Installation of a new software, Control panel, Explorer, Accessories, network neighbourhood, System tools, Recycle bin, Files and Directory management under windows, Running programs.

SECTION-D
Unix: Structure of Unix, Kernel and shell, Commands of Unix, Unix file system, own file system, Electronic mail.
Vi Editor: Editing text, screen controls.
Printing and spooling.

Text books:

PGDCA-13 : DBMS

Maximum Marks : 80
Minimum Pass Marks : 40 %
Lectures to be delivered : 40-50
Time allowed : 3 Hrs.

A) Instructions for paper-setters
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B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non programmable scientific calculator is allowed.

SECTION A
Roles in Database Environment: Database Administrators, Database Designers, End Users, Application Developers.
Architecture: Data Models, Categories of Data Models- Conceptual Data Models, Physical data Models, Representational Data Models, such as, Object Based Models, Record Based Models, Database Schema and Instance, Three Schema Architecture, Data Independence – Physical and Logical data Independence.

SECTION B
Enhanced E-R Modelling: Aggregation, Generalization, Converting ER Diagrams to Tables.

Relational Data Model: Concepts and Terminology, Characteristics of Relations.
Constraints: Integrity Constraints- Entity and Referential Integrity constraints, Keys- Super Keys, Candidate Keys, Primary Keys, Secondary Keys and Foreign Keys.

SECTION C
Relational Algebra: Basic Operations, Additional Operations, Example Queries.
Normalization: Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive Dependency, Normal Forms- 1NF, 2NF, 3NF, Boyce-Codd NF,

SECTION D
MS-ACCESS: introduction to MS-ACCESS, working with databases and tables, queries in Access, Applying integrity constraints, Introduction to forms, sorting and filtering, controls, Reports and Macro: creating reports, using Macros.

Text Book:
2. Content Development Group” Working with MS-OFFICE 2000 “, TMH.

References:
3. C.J. Date, "An Introduction to Data Base Systems", Pearson Education India.
A) Instructions for paper-setters
The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
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SECTION A
Programming process: Problem definition, program design, coding, compilation and debugging
Identifiers and keywords, data types, input and output, type conversion, operators and expressions: Arithmetic, unary, logical and relational operators, assignment operator, conditional operator, library functions.

SECTION B
Control statements: branching, looping using for, while and do-while statements, nested control structures, switch, break and continue statement.
Functions: definition, call prototype and passing arguments to a function, recursion versus iteration.
Storage classes: automatic, external and static variables.

SECTION C
Arrays: Definition, accessing elements, initialization, passing to functions, multi dimensional arrays, strings
Pointers: address and referencing operators, declaration, assignment, passing pointer to functions, pointer arrays.

SECTION D
Searching and sorting techniques, linear and binary search, bubble, insertion, selection and quick sorting on array and their comparisons.

Text Books

Reference books:
1. Ram Kumar and Rakesh Aggarwal : Programming in Ansi C, TMH.
A) Instructions for paper-setters
The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates
1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non programmable scientific calculator is allowed.

SECTION - A

Computer Networks: definition, need for computer networks and advantages, Hardware, Software, Users,
Reference Models: OSI Reference Model, TCP/IP reference Model,
Types of Networks: LAN, WAN, MAN, and value added network, there features, network topologies

SECTION - B

Transmission media: magnetic media, twisted pair, co-axial cable, radio transmission, line of sight transmission and communication satellite, wireless transmission.
Switching: Virtual Circuits versus Circuit Switching.

SECTION - C

Introduction to Internet: Relays: Repeaters, Bridges, Routers, Gateways.
Internet working: How networks differ, concatenated virtual circuits, connectionless internetworking, Firewalls, internet architecture.
Applications of internet: Email, WWW and multimedia, FTP: introduction, data transfer and distributed computation.
WWW: the client side, the server side, web browser, Net surfing.

SECTION - D

Electronic Data Interchange, EDI Applications in Business, EDI: Legal, Security and Privacy Issue.

Text Books :

Reference books:
1. Douglas E. Comer, "Computer Networks and Internets” Pearsoned Education.
2. Achute S Godbole,"Data Communications and Networks”, Tata Mcgraw Hill.
A) Instructions for paper-setters
The question paper will consist of five sections A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 20% marks each. Section E will have 5-10 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

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1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the entire section E.
2. Use of non programmable scientific calculator is allowed.

SECTION A

SECTION B

SECTION C

SECTION D

References:
4. Pankaj Jalote, Software Engineering, Wiley
PGDCA-11P: Software Lab-I (DOS, Windows, Unix)

Maximum Marks 100 *  
Minimum Pass marks : 40%  
Practical Unites to be conducted 40-50  
Time allotted : 3 Hrs.

DOS: Booting under DOS, Internal and External Commands of DOS,

WINDOWS: Windows concepts, features, windows structure, desktop, taskbar, start menu, my computer, Recycle Bin, Windows Accessories. System Tools, communication, Sharing Information between Programs.

UNIX: Booting Process, Kernel, Shell, Directory structure and commands, vi editor

*Maximum Marks for continuous assessment : 60  
Maximum Marks for University examination : 40

PGDCA-12P: SOFTWARE LAB-II (MSOFFICE: EXCEL, WORD, POWERPOINT, and MS-ACCESS)

Maximum Marks 100 *  
Minimum Pass marks : 40%  
Practical Unites to be conducted 40-50  
Time allotted : 3 Hrs.

Word Processing: MS Word: - Introduction to Word Processing, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut, Editing a Document, Previewing documents, Printing documents, Formatting Documents, Checking the grammar and spelling, Formatting via find and replace, Using the Thesaurus, Using Auto Correct, Auto Complete and Auto Text, word count, Hyphenating, Mail merge, mailing Labels Wizards and Templates, Handling Graphics, tables and charts, Converting a word document into various formats.

Worksheets: MS EXCEL - Creating worksheet, entering data into worksheet, heading information, data, text, dates, alphanumeric, values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, keyboard shortcuts, Working with single and multiple workbook, Working with formulas & cell referencing, Formatting of worksheet.

Exercises related to section (D) of Paper PGDCA-3 (DBMS)

MS-Powerpoint: Creating slides, Applying transitions and sound effects, setting up slide shows, Animation.

*Maximum Marks for continuous assessment : 60  
Maximum Marks for University examination : 40
PGDCA-13P: Software Lab-III (Programming to be implemented in C)

Maximum Marks 100 *
Minimum Pass marks : 40%
Practical Units to be conducted 40-50
Time allotted : 3 Hrs.

1. Programs to be developed based upon various constructs in the C language
2. Searching and sorting algorithm to be developed in C language.

*Maximum Marks for continuous assessment : 60
Maximum Marks for University examination : 40

PGDCA-14P: Software Lab-IV (Web Designing, HTML and Other Scripting Languages)

Maximum Marks 100 *
Minimum Pass marks : 40%
Practical Units to be conducted 40-50
Time allotted : 3 Hrs.

HTML: TABLES, FORMS, FRAMES AND OTHER TEXT FORMATTING TAGS
DHHTML: CASCADING STYLE SHEETS AND DOCUMENT OBJECT MODEL
JAVASCRIPT: INTRODUCTION TO JAVASCRIPT.

*Maximum Marks for continuous assessment : 60
Maximum Marks for University examination : 40