ARCADE BUSINESS COLLEGE

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(Permanently Affiliated to Patliputra University)
Recognised by AICTE, Govt. of India

B. C. A.

Syllabus

अति आवश्यक सूचना

सभी छात्रों को विशेष निर्देश दिया जाता है कि वे परीक्षा संबंधी सभी नियमों को परीक्षा प्रपत्र भरने से पूर्व अच्छी तरह समझ लें। किसी सूचना को छुपाते हुए या धोखे से अयोग्य छात्रों द्वारा कॉलेज या विश्वविद्यालय में जमा किए गए परीक्षा प्रपत्र की कोई जिम्मेदारी कॉलेज या विश्वविद्यालय की नहीं होगी।

कृपया इसे अत्यंत आवश्यक समझें। – **निदेशक**

विशेष निर्देश :

1. खंड - III की परीक्षा प्रपत्र केवल वही छात्र भर सकते हैं, जो खंड - II की परीक्षा में पूरी तरह उत्तीर्ण हैं।
2. यदि छात्र किसी खंड के 2 विषयों में प्रोमोटेड होता है, तो उसे एक साथ अगले वर्ष की परीक्षा में दोनों विषयों में उत्तीर्ण होना होगा। यदि वह अगली परीक्षा में पुनः किसी एक विषय में भी अनुतीर्ण हो जाता है, तो उसके अगले वर्ष उसे उन दोनों विषयों की परीक्षा एक साथ देनी होगी।
3. यदि कोई छात्र खंड - II के प्रोमोटेड विषयों एवं खंड - III के सभी विषयों की परीक्षा एक साथ देता है और खंड - III में उत्तीर्ण व खंड - II के विषयों में पुनः अनुतीर्ण हो जाता है, तो उसका खंड - III का उत्तीर्ण परीक्षाफल भी रद्द हो जाएगा और अगले वर्ष की परीक्षा में उसे खंड - II के प्रमोटेड एवं खंड - III के सभी विषयों की परीक्षा में एक साथ बैठना होगा।
4. यदि कोई छात्र किसी वर्ष में एक्सपेल्ड हो जाता है, तो उसे अगले वर्ष उस खंड के सभी विषयों की परीक्षा में बैठना होगा एवं उसमें उत्तीर्ण या प्रोमोटेड होने के बाद ही उससे अगले वर्ष के परीक्षा प्रपत्र को भर सकेगा।
5. यदि कोई छात्र खंड - II के प्रामेटेड विषयों एवं खंड - III के सभी विषयों की परीक्षा देता है और खंड - II के किसी विषय में एक्सपेल्ड हो जाता है, तो उसका खंड - III का परीक्षाफल भी रद्द माना जाएगा। ऐसी स्थिति में अगले वर्ष उसे केवल खंड - II के सभी विषयों की परीक्षा देनी होगी, जिसमें उत्तीर्ण या प्रोमोटेड होने के बाद ही वह छात्र खंड - III की परीक्षा प्रपत्र भर सकेगा।

पाटलिपुत्र विश्वविद्यालय, पटना

छात्रों के परीक्षा में सम्मिलित होने के निर्देश

स्नातक खंड - I

1. स्नातक खंड - I परीक्षा में उर्तीण होने के लिए प्रारम्भिक परीक्षा से तीन वर्ष की अवधि तय की गई है, अगर कोई परीक्षार्थी, प्रारम्भिक परीक्षा में सम्मिलित होता है, परन्तु दूसरे वर्ष की परीक्षा में सम्मिलित नहीं होता है, तो वैसे विद्यार्थी केवल एक ही बार आगामी परीक्षा में सम्मिलित हो सकते है।

2. अगर प्रारम्भिक परीक्षा में कोई परीक्षार्थी दो या एक विषय में प्रोन्नत होता है तो आगामी दो परीक्षाओं में केवल प्रोन्नत विषय में उर्तीण हो सकता है।
3. अगर परीक्षार्थी दो विषयों में अनुर्तीण हो तो एक ही साथ दोनों विषयों में उर्तीण होना अनिवार्य है।

स्नातक खंड - II

1. स्नातक खंड - I परीक्षा उर्तीण या प्रोन्नत विद्यार्थी ही स्नातक खंड - II की परीक्षा में सम्मिलित हो सकते हैं।
2. स्नातक खंड - II परीक्षा उर्तीण होने के लिए प्रारम्भिक परीक्षा से 3 वर्ष की अवधि तय की गई है। अगर कोई परीक्षार्थी प्रारम्भिक परीक्षा में सम्मिलित होता है पर दूसरे वर्ष की परीक्षा में सम्मिलित नहीं होता तो वैसे विद्यार्थी केवल एक ही बार आगामी परीक्षा में सम्मिलित हो सकते है।
3. अगर प्रारम्भिक परीक्षा में कोई परीक्षार्थी एक या दो विषय में प्रोन्नत होता है, तो आगामी दो परीक्षाओं में केवल प्रोन्नत विषय में उर्तीण हो सकता है।
4. अगर परीक्षार्थी दो विषय में प्रोन्नत है, तो एक ही साथ दोनों विषयों में उर्तीण होना अनिवार्य है।
5. कोई परीक्षार्थी एक ही परीक्षा वर्ष में स्नातक खंड - I एवं स्नातक खंड - II की प्रारम्भिक परीक्षा 'सभी विषय' में सम्मिलित नहीं हो सकते है।

स्नातक खंड - III

1. स्नातक खंड - I उर्तीण तथा स्नातक खंड - II उर्तीण अथवा प्रोन्नत विद्यार्थी ही स्नातक खंड - III की परीक्षा में सम्मिलित हो सकते है।
2. अगर स्नातक खंड - II के प्रोन्नत विद्यार्थी स्नातक खंड - II एवं खंड - III की परीक्षा में सम्मिलित होते है, तो उस वर्ष स्नातक खंड - III में उर्तीण होने के साथ स्नातक खंड - II में उर्तीण होना आवश्यक है, अन्यथा स्नातक खंड - III का परीक्षफल रद्द कर दिया जाएगा।
3. कोई परीक्षार्थी एक ही परीक्षा वर्ष में स्नातक खंड - II की प्रारम्भिक परीक्षा सभी विषय तथा स्नातक खंड - III की प्रारम्भिक परीक्षा सभी विषय में नहीं दे सकता है।
4. स्नातक खंड - III की परीक्षा में उर्तीण होने के लिए तीन वर्ष की अवधि तय की गई है ।

परीक्षा प्रपत्र भरने की योग्यता

केवल वही छात्र परीक्षा प्रपत्र भर सकते है, जिन्होंने कक्षाओं में न्यूनतम 75 प्रतिशत उपस्थिति दर्ज कराई है एवं जिन्होंने परीक्षा के वर्ष तक का पूरा कॉलेज शुल्क एवं विश्वविद्यालय परीक्षा शुल्क का भुगतान कर दिया है।

BACHELOR OF COMPUTER APPLICATIONS
FIRST YEAR

HONS. PAPER - I **Full Marks – 100**

(Theory - 75, Practical – 25)

COMPUTER FUNDAMENTAL

Introduction to computers: What is a computer ? Comparison between computer and human brain, Characteristics and computer application.

History of computer: Initial development, Generation of computer, Evolution of personal computers.

Computer organization: Basic unit of computer, Block diagram of computer, Input unit, Processing unit, Memory unit, Output unit.

Types of printers: Hard copy output, Impact printers, Non Impact printers, Serial and Line printers, Dot matrix printers, Laser printers, Daisy wheel printers, Drum and chain printers, Thermal printers.

External storage device: SASD, DASD, Punch card, Magnetic Tapes, Blocking utilization factor, Magnetic Disk, Tracks, Sectors Seek Time, Rotational latency, Access time, Numerical problems.

Types of computers: Digital, Analog, Hybrid computers, General purpose computers, Micro computers, Mini computers, Mainframes, Super computers.

Data Representation: Number System, Binary to decimal and decimal to binary conversion, Binary addition, 2's complement representation, Binary subtraction, ASCII and EBCDIC coding.

COMPUTER SOFTWARE: Machine language, Assembly language, High level languages, Compilers, Interpreters Assemblers, Centralized processing, Decentralized processing, Distributed processing, Management Information System.

PROCESSING MODES: Uniprocessor, Multiprocessor, Batch processing, off-line data entry, on-line processing, on line data entry, real

time processing, Time sharing processing, Electronic mail, Tele text, Tele conferencing.

PROGRAMMING CONCEPT: Program definition, Characteristics of good program, Programming steps, algorithms and flowcharts.

INTRODUCTION TO COMPUTER ARCHITECTURE

Introduction to microprocessors and associated components, Timer, display controllers, DMA controllers.

Block diagram of IBM PC. Evolution of microprocessor. Family of Intel microprocessor. Introduction to 8086 & 8088 architecture.

Functional description of various modules & cards. CISC & RISC technology. Various types of display and other peripherals used in IBM PCs.

Boot process in IBM PC. System files, self-test.

Disk operating system Introduction File management. Directory Stucture in DOS. Internal and External commands of DOS.

Batch files, Configuration files, System files, COM, BIN, SYS, EXE, & TEXT files.

Programming logic and design techniques:-

Program development, low level programming language, high level language, Programming aids, programming techniques, programming tools, program maintenance. Techniques of programming (Algorithm, flowcharts, Pseudocodes). Introduction, Need of structured programming, Development of structure programming in QBASIC.

PRACTICAL

Visit to computer lab. Introduction to various components of a computer. A simple documentation preparation and printing. Usage of printer and other components. Use of External and Internal DOS commands. Programming in QBASIC.

Physical inspection of IBM PC and internal cards. Introduction to nomenclature (COM1, COM2, etc.) Writing batch files for various purpose. Modify config. Sys files.

HONS. PAPER - II **Full Marks – 100**

(Theory – 75, Practical – 25)

OPERATING SYSTEMS

Introduction to various categories of software. Operating System and its function. Interaction of OS (Operating System) with hardware and user program.Various components of OS with reference to DOS, BIOS, and DOS interrupt. Single user operating system, Task loader, Memory management. Device management, control of various devices. Device driver interrupts, driven and poll driven data transfer. Need of software and hardware protocols. Multi-user, Multi-tasking, Multi processing and real time operating system. Introduction to memory management techniques. File system, File Management, Process management and scheduling. Special requirement and facilities for multiprocessing operating system. Introduction to UNIX. User management in UNIX, UNIX Commands. Computers in automation: Nature and uses of information, Formal and Informal Information and communication, Gathering and presenting Information. System life cycle, documentation, testing, debugging, Implementation.

BUSINESS APPLICATIONS

Database organization, database files, records, fields, and types of database. File organization: Sequential file, Random file, Indexed file. FoxPro, MS-office, WIN 98, WIN 200

FOXPRO VIEWING AND EDITING DATA

- FoxPro version, features, requirement of hardware and software
- FoxPro Menu system
- Creating database file, Operation of database (Create, list, append, close, quit)
- FoxPro data type

- Data display and monitoring commands: DISPLAY, LIST, LOCATE, EDIT, CHANGE, BROWSE, REPLACE, DELETE, RECALL, PACK (all commands with various options)
- File utilities in FoxPro, DISPLAY DIRECTORY, COPY, RENAME.

FOXPRO: INDEXING, SORTING AND PRINTING REPORT

- Indexing concept and sorting
- Sort commands – single & Multiple Key
- Advantages and disadvantages of sort
- Indexing vs Sorting & Multiple key
- Indexing, FIND, SEEK, Rushmore Technology
- FoxPro Level Designing and printing

FOXPRO: MEMORY VARIABLES, KEYBOARD MACRO AND FUNTION

- Memory variables-creation and uses, simple vs array
- Saving and restoring memory variables
- ?, ??, ??? Commands
- Time & date function and commands, date arithmetic
- Converting, defining functions
- Keyboard Macros creating and using
- Arithmetic operations, Mathematical function, Mathematical commands, statistical Functions

PROGRAMMING AND ERROR DEBUGGING:

- Concept of FoxPro commands, file, Modify commands
- Conditioning branching and looping within Program file with Do While, End do, if End if, Scan End scan, For End for, Do case, End case, Text End text, Executing commands from other commands files, Macro substitution
- Common Error Message
- Debugging techniques and commands
- Keyboard Macros creating and using

MULTIPLE DATA FILE AND CUSTOM SCREENS

- Concept of Multiple database File, Using multiple database SET RELATION, UPDATE, APPEND, FROM, COPY TO, JOIN, Relation Query by example.
- Create custom screen with @, @_ GET, @SAY_GET_READ, Creating Box & Line, User define functions, Custom screen Designing and their uses, FoxPro for Documentation.

TEXT AND REFERENCES:

1. FOXPRO made simple: by R. K. Taxali, BPB
2. MASTERING FOXPRO 2.5, BPB Publication.

PRACTICAL

Development of a batch files to install software from floppy to disk. Development of batch files to manage various package on the disk. Detection of viruses and protection packages on IBM PC. MS-OFFICE, WINDOWS 98/2K.

SECOND YEAR

HONS. PAPER - III Full Marks – 100

(Theory 75, Practical – 25)

COMPUTER NETWORKING:

Introduction to the n/w, Network Topologies, Types of Channels: Twisted Wire, Co-axial wire, Microwave

Communication, Satellite Communication, Optical Fibre, Simplex, Duplex, Half Duplex Communication,

Switching Techniques: Circuit Switching, Message Switching, Packet Switching, FEP, Repeater, Bridge,

Gateway, Token Passing CSMA/CD Protocols, ISO: OSI Model, NIC, Serial and Parallel Communication.

INTERNET:

- Evolution , Protocols, Interface Concept, Internet Vs Intranet, Growth of internet, ISP, Connectivity Dial Up, Leased Line, VSAT etc., URLs, Domain names, Portals, application.

- E-mail Concept, POP and Web Based E-mail, address, Basics of sending and receiving

  E-mail, protocols, mailing list, Free E-mail services.

BOOLEAN ALGEBRA :

Boolean Algebra Rules and Theorems, De-Morgan's Theorem, Duality principal, Logical gates, Canonical equations, k- Maps, half Adder, Encoder, Decoder.

STRUCTURED PROGRAMMING:

Methods of Documentation. Methods of analyzing a program requirement. Data flow diagrams.

C - LANGUAGE :

Unit I

- Overview of C
- Introduction & features of C
- Structure of C programming
- Variables, Expression, Identities, Keywords, Data types, Constants
- Operator: Arithmetic, Logical, relational Conditional, and Bit wise Operators
- Type conversion in Expression

Unit II

- Basic I/O and library function
- Single character I/O ,i.e. getch(), getchar(), getche(), putchar()
- Formatted I/O i.e. printf(), and scanf()
- Library Functions Concepts Mathematical and character functions
- Control structure
- If statement, If Else Statement Nesting of If else Statement, else if ladder
- The? : Operator (ternary Operator)
- Switch statement
- Compound statement
- Loop statement

- For, While, do-while loops
- Break, continue, goto statement

Unit III – Array

- Single and Multi Dimensional array
- Array declaration and initialization of arrays
- String: declaration and initialization, string functions

Unit IV – Functions

- Functions
- The need and form of C function
- User defined and library functions
- Function arguments
- Calling of functions
- Return values and nesting of functions
- Recursion
- Array as function argument
- Scope and life of variable, local and global variable
- Storage class specifier-auto, extern, static, register

Unit V – Structure & Union

- Structure and union
- Defining structure
- Declaration of structure- variable
- Accessing structure member
- Nested structure
- Array of structure
- Structure assignment
- Structure as function argument
- Union

Unit VI – Pointer

- Basic of pointer , pointer operators, Pointer and function
- Passing arrays to functions
- Array pointers
- Pointer of string, pointer to structure, Pointer within structure

Unit VII – The process of memory allocation

- Malloc() function
- Sizeof() operator
- Function calloc()
- Function free()
- Function realloc()

Unit VIII – File structure

- File handling function Opening file and closing file
- File pointer
- Text file
- Binary file
- Writing and reading a character
- fopen(), getc(), putc(), & fclose()function
- feof()function
- Working with string fputs & fgets
- Flushing stream
- Using fread(), fwrite()
- Direct access file

Unit IX – The Pre-processor

- # define
- Defining macros
- # error
- # include
- Conditional compilation directive i.e. #if, #else, #elif, and #ifdef & #undef

Unit X

- Initialize graphics mode
- Function added in graphics

Unit XI

- Creations of windows
- Text attributes control
- Extended Keyword code
- Menu design
- Word processing

HONS. PAPER - IV

Full Marks – 100

(Theory 75, Practical – 25)

Data Structure

Introduction to data structure

- Concept of data structure
- Abstract data structure
- Analysis of algorithm
- The concept of list

Stack and Queues

- Introduction to stack & primitive operation on stack
- Stack as an abstract data type
- Multiple stack
- Stack application : infix, postfix, prefix, and recursion
- Introduction to queues
- Primitive operation on the queue
- Queues as an abstract data type
- Circular queue
- Dequeue
- Priority queue

Linked List

- Introduction to the linked list of Stack
- The Linked list of Queue
- Header nodes
- Doubly Linked List
- Circular Linked List
- Stack & Queue as a circular Linked List
- Application of Linked List

Tree

- Basic Terminology
- Binary Tree
- The Tree representation as Array & Linked list
- Binary Tree representation
- Traversal of Binary tree: Inorder, preorder & postorder
- Application of Binary tree

- Threaded Binary Tree
- B Tree & Height Balanced tree, representation of B+ & B* trees
- Binary Tree representation of trees
- Counting Binary trees

Searching and Sorting

- Sequential Searching
- Binary Searching
- Selection Sort
- Insertion Sort
- Quick Sort
- Bubble Sort
- Radix Sort
- Shell Sort
- Heap Sort
- Comparison of Sorting Methods

Tables and graphs

- Hash table
- Collision resolution Techniques
- Introduction to Graphs
- Definition
- Terminology
- Directed, Undirected, & Weighted Graph
- Representation of Graphs
- Graph Traversal Depth first & Breadth First Search
- Spanning Tree, Minimum Spanning tree
- The Basic Greedy Strategy for Kruskal and Prims

Text & Reference Books

Fundamentals of data Structure: by S.Sawhney & Horowith

- Data Structure: R.B.Patel
- Data Structure: Tannenbaum

COMPUTER AIDED DRAFTING

Introduction to AUTOCAD / ROBOCAD or similar package. Advanced features of these Package. Drawing plan of a building using AUTOCAD etc. Analysis feature of AutoCAD.

PRACTICAL

Design of layout of a building. Design of interior of its rooms. Printing and plotting the prepared drawing.

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THIRD YEAR

HONS PAPER - V — Full Marks – 100

Programming in Visual Basic

- The Integrated Development Environment of Visual Basic
- Menu Bar, tool bar, Project Explorer, tool Box, the Properties Windows
- The form Designer
- Immediate Window
- Edit, View, Run, Debug Options
- Using the Application Wizard

Mapping Project

- Concept of VB project
- Creating the project
- Opening, renaming and saving the Projects

Elements of the user Interface

- Designing the user interface
- Creating forms and code modules
- Aligning
- Running the application
- Programming an application
- Programming the command buttons
- Grouping controls
- Visual development and event driven programming
- Common properties
- Methods and common properties
- Customizing the environment: Editor tab, format tab, general tab, docking tab, environment tab

Introduction to visual basic language

- Declaring variable, type of variable, converting variable type
- User defined data type
- Special values
- Forcing variable declarations
- A variable's scope
- Constants
- Arrays
- Collections
- Procedure, subroutines, functions, arguments
- Control flow statement and conditional statements
- Loop statements
- Iteration

Working with forms

- Loading
- Showing and hiding forms
- Controlling one form within another
- Using form templates
- Menus
- Designing menus
- Programming menu commands
- Using access and shortcut keys
- Mapping menus at runtime
- Mouse conflicts, dragging list, Items using message boxes and input dialogs
- Using standard modules instead of form modules

ActivXCommands

The text box controls

- Basic properties
- Manipulating the control's text
- Text selection
- Search and replace operation
- Capturing key strokes

List box and combo box

- Basic properties
- The list box control methods
- Indexing with list box controls
- Searching and sort list
- The scroll box and slider controls
- Scroll bar control
- Scroll bar control's event

Dialog Box

- Using the common dialog controls
- Color common dialog box
- Font dialog box
- The file open and file common dialog box
- Print dialog box
- Help dialog box
- File controls
- The built Active X controls

Component of Visual Basic

- Classes, Instances, Objects
- Encapsulation and abstraction
- Derived classes and base classes
- Dynamic Binding, creating object, variable forms as a class
- Creating, manipulation, runtime controls browser
- Object linking and embedding

Graphics with Visual Basic

- Form, picture box and image box controls, sizing image loading and saving images
- Exchange image through the clipboard
- Coordinating systems, scale properties and methods
- The drawing methods, drawing text, drawing boxes filling
- Drawing curves, manipulating pixels, specifying colors, specifying gradients

- Event driven programming , MDI (Multiple documents interface)
- Interface with VB Windows API
- Dynamic link library
- Programming and Interfacing with Office DBMS

DBMS - I

- Categorization of DBMS system, Network, hierarchical and relational database, application of DBMS system, entry relationship charts
- Relational Database Management System (RDBMS). Why to use them and where data manipulation language (DML) and data control language (DCL)
- Security consideration in DBMS, performance improvement in databases.

DBMS (Database Mng. System) –II

- Relational database-Advance concept introduction to oracle/ingress or a similar RDBMS on a multi user Environment.

Structure Query Language (SQL), Form design on an Advanced RDBMS, Report generation, Query by example (QBE) and report by form. Accessing RDBMS using management , security consideration

HONS. PAPER - VI Full Marks 100

Object Oriented Programming

- Introduction to Object Oriented Programming (OOP) and C++
- Objects
- Polymorphisms
- Inheritance
- C++ fundamental
- Classes and Objects
- Function and Overloading
- Operator Overloading
- Constructor and destructor

- Multiple Inheritance
- Passing Objects to function
- Array of objects
- Pointers to Objects
- C++ I/O Class Library
- C++ Stream
- C++ Pre-defined Streams
- C++ Stream Classes

JAVA PROGRAMMING

Overview of Java

- Java program structure, tokens, Java Virtual Machine, Constants and Variables, Data types, Declaration of variables and scope of variable, type casting
- Operators : Arithmetic, Relational, Logical, Assignment, Increment and decrement, conditional, Bit wise, Special Expression and its evaluation
- Decision making and branching: if statement, if else statement, nesting of if else statement, if else ladder, switch statement? : operator , Loops: do-while, for, while, jumping loops , labelled loops
- Classes, Objects , Methods: Defining class, adding variable and methods, creating objects , accessing class member , constructor , methods of overloading , static member , nesting of methods
- Inheritance: Extending a class , Overriding methods , final variables and methods , final classes , finalize methods , abstracts methods and classes, visibility controls
- Array: One dimensional and two dimensional ,string and vectors, wrapper class
- Interface and package: Defining interfaces, Extending interfaces, Implementing Interfaces , Accessing Interfaces , Creating and importing packages
- Multithreading: Creating Threads, Extending thread class, stopping and blocking thread, life cycle of thread, thread exception,

thread priority, synchronization, implementing the runnable interface

- Applet Programming: Local and Remote Applet vs. Application writing Applet, Applet life cycle, Creating and Executing Applets, designing a web page, Applet tag, adding Applet to HTML, Running the Applets, Passing parameters to Applets, Aligning the display

Advance Topics in Computers

- Introduction to computer animation, Artificial Intelligence, Dedicated computer, ATM, Data Encryption, Data Communication and networking (Course to be modified every year to take care of latest developments)

HONS.PAPER - VII — Full Marks – 100

Design of a database for a business application. Design of data entry forms and report layouts for these databases. Creation of program to access and manipulate the databases.

Development of a business application in RDBMS.

Creating, merging, and deleting tables.

Project preparation and Viva-voce.

HONS PAPER - VIII — Full Marks – 100

Prepare a project in C++ programming.

Project preparation and Viva-Voce.

★ ★ ★

SUBSIDIARY SUBJECTS
FIRST YEAR

ENGLISH (Full Marks 100)

Books prescribed

1. MotiLal Banarsi Dass : The Golden Treasurey
i. Herbert : Love
ii. Milton : On His Blindness
iii. Pope : A Little Learning
iv. Words Worth : A Slumber Did My Sprit Seal
v. Keats : Ode To a Nightingale
vi. Shelley : Ode to the West Wind
vii. Tennyson : Break Break Break
viii. HopKins : God's Grandeur
ix. Auden : Look Stranger
2. DRAMA
Shakespear : The Merchant of Venice
3. The Literary Heritage : A New Anthology of Prose and Short Story

i.	India again	—	E. M. Froster
ii.	Life's Philosophy	—	J. Nehru
iii.	On Being a Bore	—	Robert Lynd
iv.	The Country of the Blind	—	H. G. Weels
v.	The Post Master	—	R. N. Tagore
vi.	The Selfish Giant	—	Oscar Wilde

Distrubution of Marks :-

Six Explanations to be set(Two from each of the three books) three answers to be attempted 8 x 3 = 24

Three questions to be answered one each from the three books 20 X 3 = 60

Precis of a passages 16

MATH (Full Marks - 100)

GROUP A : Set Theory: Notation of Sets And Their Algebra, Cartesian product, Relation and Mapping and their classification, Equivalence

Relation and Partition of sets, Countable sets. Abstract Algebra: Binary operations, Notations of Group, Sub Group Cyclic Group and Permutation Group Elementary Concepts of Ring, Integral domain and fields with examples.

GROUP B : Matrices : Its Algebra kinds of Matrices (Unitary Matrix, Hermitian Matrix) transpose adjoint, Inverse and orthogonal Matrices, Notations of Rank Matrix. Linear Programming Problem : Convex sets and their properties. L.P.P. and their Graphical Solution, Theory of Simplex Method and this simple Application.

GROUP C : Trigonometry : Demovers De-Moiver's and its Applications. Complex Arguments and hyperbolic Functions Gregory series. Real Analysis: - Sequence and there convergence Cauchy's General principal of convergence, Convergence & Divergent series of The Positive terms, comparison Test, Cauchy's root test , D'Almberts Test , Alternative series , continuity and differentiabiability.

GROUP D : Co-ordinates Geometry: System of circle, Radical Axis, Coaxial Circles. The Parabola, the Ellipse, The Hyperbola, Conics.

GROUP E : Analytical Geometry of three dimensions: Relations and Notations between different systems of Coordinates. Direction cosines Angle between two straight lines, equations of planes and straight-line condition for coplanarity of straight lines. The shortest distance between two lines. Sphere.

HINDI 'प्रथम वर्ष' (100 Marks)

अंकों का विभाजन

(क)	पाठ्य पुस्तकों से आलोचनात्मक प्रश्न	3 x 12 = 36
(ख)	व्याख्या	3 x 8 = 24
(ग)	निबंध	1 x 15 = 15
(घ)	व्याकरण	3 x 5 = 15
(ङ)	वस्तुनिष्ठ प्रश्न	10 x 1 = 10
		योग = 100

पाठ्य पुस्तकें

कविता–कानन : सं० डॉ० देवदत्त राय

पाठ्यांश

विद्यापति : बड़ सुख सार पाओल तु तीरे,
नव वृंदावन, नव नव तरू गन।

कबीर : कौन ठगवा नगरिया लूटल हो,
भगति बिनु बिरथे जनम गयो।

सूरदास : निस दिन बरसात नैन हमारे।
ऊधो, मोहि ब्रज बिसरत नाहिं।

तुलसी : मन पछतइहें अवसर बीते।
यह विनती रघुवीर गोसाई।

बिहारी : निम्नलिखित दोहे :

नहिं पराग नहिं मधुर मधु, पत्रा हीं तिथि पाइयै,
चिरजीवी जोरी जुरै क्यों, करी बिरह ऐसी तऊ,
मोहन मूरति स्याम की, कनक-कनक तैं सौगुनी,
त्यों त्यों प्यासेई रहत, अधर धरत हरि कैं परत,
कहलाने एकत बसत, समै समै सुंदर सबै।

रसखान : खंजन नैन फँदे पिंजरा, कान्हा भये बस बाँसुरी के।

अथवा

साहित्य धारा : सं० डॉ० शिवाजी नाले / सं० इरेश स्वामी
प्रकाशक - ओरिएंट लांग्मैन, पटना

पद्य : कबीर, रहीम, बिहारी, मैथिलीशरण गुप्त, रामधारी सिंह 'दिनकर'

गद्य : प्रेमचंद (पूस की रात), चिंरजीत (अखबारी विज्ञापन), हरिशंकर परसाई (समय काटने वाले), रामवृक्ष बेनीपुरी (वुधिया), महादेवी वर्मा (सबिया)

निबंध : छात्र जीवन, राजनीति, प्रकृति, महापुरुष, युद्ध, शांति, रोजगार, शिक्षा पद्धति, खेल, चलचित्र, रेडियो, विज्ञान, साहित्य आदि से सम्बन्धित

व्याकरण : उपसर्ग, प्रत्यय, वाक्य संशोधन, मुहावरे एवं लोकोक्तियाँ, संक्षेपण, पल्लवन, पत्र-लेखन।

वस्तुनिष्ठ प्रश्न : हिन्दी रचना के पाठ्य क्रम पर आधारित होंगे।

SECOND YEAR

ENGLISH (Full Marks 100)

Book Prescribed : The New Icons

(An Authology of Prox & Short Stories) Oxford University Press

1. Short Stories

i. The Gift of the Magi: O Henry

ii. A Doll's House: K. Mansfield

iii. A Parrot in the Cage : M. Anand

iv. A Ten Lakh Bank Note: Mark Twain

v. A Work of art: Chekov

vi. Uncle Podger : Jerome K. Jerome

vii. The Speckled Band - Sir A.C. Dayle

2. Article/Essay

i. Of Studies: Bacon

ii. Indian Civilization and Culture: M.K. Gandhi

iii. Forgetting: Robert Lynd

iv. A Definition of a Gentleman: Newman

v. On Habits - A. G. Gardiner

3. Novel

Animal Farm: George Orwell

4. Grammar and Composition

i. Essay

ii. Correction

iii. Idioms and Phrases

iv. Homophones

HINDI 'द्वितीय वर्ष' (100 Marks)

अंकों का विभाजन

(क) आलोचनात्मक प्रश्न	3 x 15 = 45
(ख) व्याख्यात्मक प्रश्न	3 x 10 = 30
(ग) लघु उत्तरीय प्रश्न	3 x 5 = 15
(घ) वस्तुनिष्ठ प्रश्न	10 x 1 = 10
	योग = 100

पाठ्यग्रंथ

1. कुरूक्षेत्र : दिनकर

   अथवा

   यशोधरा : मैथिलीशरण गुप्त

2. अक्षयवट : डॉ० सं० भूपेन्द्र कलसी

पाठ्यांश :

(क) यज्ञ – महात्मा गाँधी

(ख) हमारा सांस्कृतिक पतन – डॉ० सम्पूर्णानंद

(ग) दक्षिण गंगा गोदावरी – काका साहेब कालेलकर

(क) सप्तसागर महादान – वासुदेवशगरण अग्रवाल

(म) आजादी के बाद भारतीय विज्ञान – गुणाकर मूले

अथवा

गद्य – प्रवाह : सं० डॉ० विजय

कुरूक्षेत्र श्रेष्ठ युनिवर्सिटी बुक हाउस, जयपुर

पाठ्यांश

(क) व्यंग्य – मूल्यों का उलट–फेर – हरिशंकर परसाई

(ख) रिपोर्ताज – मुक्ति योद्धाओं के शिविर में – विष्णुकांत शास्त्री

(ग) पत्र साहित्य – इतिहास से शिक्षा – पं० जवाहर लाल नेहरू

(घ) वैज्ञानिक निबंध – पर्यावरण और सनातन दृष्टि

(ङ) ललित निबंध – हल्दी–दूब और दधि–अच्छत – विद्या निवास मिश्र

MATHS (Full Marks - 100)

GROUP A : Differential Calculus (3 Questions) : Successive Differentiation, Leibnit's theorem, Taylor's series and Maclaurian's series, Partial derivatives Euler's theorem, Inderminate forms, Equation of Tangents and normals, Asympotes, Formulae of radius Curvature in different Coordinates system, Maxima and minima of functions of single variable. Integral Calculus (3 Questions) : Indefinite Integal, Definite Integral, Properties of Definite integration, Integration by summation method, Reduction formulae.

Rectification and Quadrature with simple examples, Volume and surface of solid of revolution, Moment of Inertia, Simple use of double and triple integration and Gamma and Beta Function. Differential equation (3 Questions) : Differential equation of 1st order and 1st degree. Separation of variables, Homogeneous equations of first order and higher degrees, Clairaut's form, Linear differential equations of second with constant coefficient, Orthogonal trajectories.

GROUP B : Vector Analysis (3 Questions) : Classification of Vectors, Triple products. Differentiation of a vector functions, Differentiation of product of two vectors, Gradient of scalar. Divergence and Curl of vectors in cartesian coordinates.

GROUP C : Mechanics(Questions 2): Coplanar forces system, Necessary and sufficient condition for equilibrium of particle, necessary condition for a system a particle to be in equilibrium. Reduction of a general plane forces system, Equation of the Line of action of the result. Principle of virtual work. Dynamics (3 Questions): Basic concepts of mechanics, Basic laws of mechanics, Inertial frames of reference, work and Energy, principles of linear momentum, angular momentum, angular momentum and energy for a particle, conservation field and potential energy, principles of conservation of energy for particle. Rectilinear motion uniformly accelerated motion (Including connected system), Resistance motion, Harmonic Oscillate damped and force vibrations, Elastic Spring and strings , Hook's law Vertical and Horizontal vibrations of a article attached to an elastic string. Motion in a Plane : Components of velocity and acceleration. Cartesian redial and transverse. Tangential and normal.

THIRD YEAR

GENERAL STUDIES : General Awareness, Current Events, General Events, Reasoning Ability, General knowledge.

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