SOPHIA GIRLS' COLLEGE (AUTONOMOUS), AJMER

2020-21

1.1.2 Number of Programmes where syllabus revision was carried out during the year:

SGCA/BA Geog. /2020-21

SOPHIA GIRLS' COLLEGE, AJMER (AUTONOMOUS)

Scheme of Examination And

SYLLABUS

2020-21(Batch)

FOR

BACHELOR OF ARTS

(Geography)

Under

Choice Based Credit System

Semester – I to VI

SGCA

Course Structure in Semester – V

Paper Code	Nomenclature	Type	Contact Hours Per Week	Credits	Total Marks		Max. Marks	Min. Pass Marks	Duration
					CIA	ESE			
GEO-501	Environmental Geography	Core	03	03	25	50	75	30	2½ hrs
GEO-502	A. Regional Geography of The World - I (Asia, Europe & Australia) **OR** B. Regional Geography of South Asia-I	DSE	03	03	25	50	75	30	2½ hrs
GEO-503	Plane table Survey and Prismatic Compass Survey	Practical	04	02	10	40	50	20	3 hrs

GEO-501 ENVIRONMENTAL GEOGRAPHY

Max. Marks :75 **Min.Marks:30**

Credit: 03 **Duration: 2 ½hrs**

Learning Outcomes: On successful completion of the Course the student will be able to-

1. Recall and relate the elements of environment which are impacting the climate and present surroundings.
2. Justify the fundamentals of ecology and the dynamic ecosystem.
3. Prioritize the importance and the need to conserve biodiversity.
4. Build competency and academic excellence for competition exams.

UNIT I

Definition, Scope and Importance of Environment Geography; Elements of Environment: Physical and Cultural; Relation between Man and Nature; Deforestation, Forest policy of India.

UNIT - II

Water as a Resource: Surface and Ground water, its use and over-utilization; Disasters related: Floods, Drought, Dams- Case study of Kariba dam (Zimbabwe) and Tehri dam (India); Environmental effects of extracting and using mineral resources.

UNIT - III

Energy as a Resource: Renewable and Non-Renewable; Land as a Resource; Soil erosion and Desertification; Development of non conventional energy resources according to five-year plans in India.

Reference Books:

- Chandna, R. C. (2002). Environmental Geography. Ludhiana: Kalyani.
- Gautam, A. (2013). Environmental geography. Allahabad: Sharda pustak bhawan.

SOPHIA GIRLS' COLLEGE,
(AUTONOMOUS)
AJMER

Scheme of Examination
And
SYLLABUS

2020-21(Batch)

FOR

Master of Science
(COMPUTER SCIENCE)

Under
Choice Based Credit System

Semester - I to IV

Scheme of Examination
(For M. Sc. Computer Science)

The examination for the M. Sc. Computer Science will consist of (a) Theory papers (b) Laboratory / Practical work and project work. Candidates will be required to pursue a regular, full time course of study at the University department and the affiliated colleges for a period of two academic years in order to be eligible for appearing in the examination.

1. Eligibility for M. Sc. Computer Science: 50% marks in any graduation scheme.
2. Examination:
    i. There shall be 25 papers (16 theory, 8 practical in each year and 1 project as practical in the final year) of 2100 marks (previous and final year). Theory paper shall be of 3 hours duration having 100 marks. Out of 100 marks 30 marks shall be considered as internal assessment based on internal test and seminars and 70 marks will be of theory examination. The practical shall be of 50 marks out of which 15 marks shall be considered as internal & 35 marks assessed by external examiner. The project work shall be of 100 marks based on project presentation and viva-voce out of which 30 marks shall be considered as internal & 70 marks assessed by internal & external examiner.
    ii. For passing a candidate shall have to secure at least 40% marks in each course (theory paper, internal and practical work separately) and 50% marks in the aggregate in all the courses.
    iii. Due paper(s) will be applicable if a candidate obtains 50% marks in aggregate and fails in not more than three (3) papers (theory). Due paper(s) will be held along with the examination of the next year. The chance of due paper(s) will be given only 2 times.
    iv. Wherever a candidate appears at for a due paper examination he/she will do so according to the syllabus in force.
    v. A candidate not appearing at any examination/absent in any paper of term end examination shall be deemed as fail.
3. A candidate for a pass in the examination shall be required to obtain:
    i. At least 50% marks in the aggregate of all the papers prescribed for the examination and
    ii. At least 50% marks in the practical(s) wherever prescribed at the examination, provided that if a candidate fails to secure at least 40% marks in each individual paper at the examination notwithstanding his having obtained the minimum percentage of marks required in the aggregate for that examination.

    No Division will be awarded in the Previous Year examinations. Division shall be awarded at the end of the Final Year Examination on the combined marks obtained at the previous and final examinations taken together as noted below:

Passed with First Division	60% of the aggregate marks taken together of previous and final examinations
Passed with second division	50%

    Provided that if a candidate clears any paper after a continuous period of two years since he/she was admitted to the M. Sc. Computer Science/Information Technology then for the passing marks, i.e. 40% marks, shall be taken into account in the case of such course(s).
    Provided further that in case where a candidate requires more than 40% marks in order to reach the requisite minimum aggregate as many marks, out of those actually secured by him/her will be taken into account as would enable him/her to make up the deficiency in the requisite minimum aggregate marks.

4. Candidates reappearing at an examination in a subsequent year shall be examined in accordance with the scheme and syllabi in force and shall be entitled to the award of the degree of year in which they clear the last failing/unclear paper.

Examination Pattern

Maximum Marks : 70 **Duration : 2 ½ Hrs.**

Section A 10 * 1 =10 marks

Contains 10 Questions of 1 mark each & all are compulsory to do.
Three questions from each unit (but 4 questions from one unit)
3 + 3 + 4 = 10 Questions

Section B 3 * 5 = 15 marks

Contains 3 questions with internal choice (Two questions from each unit).
Each Question carries 5 marks. All Questions are compulsory to do.

Section C 3 * 15 = 45 marks

Contains 3 questions with internal choice (Two questions from each unit).
Each Question carries 15 marks. All Questions are compulsory to do.

Note:

1. There will be sessional (internal assessment) of 30 marks conducted by the college.
2. Two Practical exams shall be conducted by one internal and one external examiner of a batch of 20 students in day.
3. **Project Work:** 6 hours per student.
   The Project Report work shall be assessed by one internal and one external examiner only of a batch of 20 students in a day. The project work should not be done in a group. Each student shall be allotted one project and one copy should be submitted to the College.
4. Duration of Practical exam is 3 hours.
5. A Laboratory Exercise File should be prepared by each student for each practical paper and should be submitted during practical examinations.
6. Practical of 35 marks distribution is as under:
   a. 15 marks for practical examination exercise for 3 questions
   b. 10 marks for Viva-voce
   c. 10 marks for Laboratory Exercise File

Course Structure in Semester - I

Paper Code	Nomenclature	Contact Hours		Credits	Total Marks		Max. Marks	Min. Marks	Exam. Duration
		Per Sem.	Per Week		CIA	ESE			
MSC – 101	Computer Architecture	90	06	06	30	70	100	40	3 Hr.
MSC – 102	Computer Networks	90	06	06	30	70	100	40	3 Hr.
MSC – 103	Java Programming	90	06	06	30	70	100	40	3 Hr.
MSC – 104	A. Electronic Data Processing **OR** B. Mobile Application Development	90	06	06	30	70	100	40	3 Hr.
MSC – 105	Computer Architecture & Computer Networks -Laboratory	90	06	03	15	35	50	20	3 Hr.
MSC – 106	A. Java Programming & EDP – Laboratory **OR** B. Java Programming & Mobile App. Development – Laboratory	90	06	03	15	35	50	20	3 Hr.
					Semester Total		**500**	**200**	

MCS – 101 Computer Architecture

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Understand the design of circuits and the number system used in digital circuits.
2. Simplification of Boolean algebraic expressions
3. Study the concepts of Arithmetic circuits and Combinational Circuits.
4. Study the memory organization and its types.

Unit-I

Fundamentals of Computer Architecture: Major components of Digital Computer, Flynn's classification of Computer.

Computer Arithmetic: Number systems: Decimal numbers, Binary numbers, Octal numbers, hexadecimal numbers and their mutual conversions, Binary arithmetic: Addition, subtraction, multiplication, and division of binary numbers, 1's and 2's complements, 9's and 10's complement, BCD codes: addition and subtraction, BCD to binary convertor, binary to gray and gray to binary.

Boolean algebra and minimization techniques: Boolean logic operations, basic laws of Boolean algebra, De-Morgan's theorem, Karnaugh map: sum of product and product of sum, do not care condition.

Unit-II

Logic Gates: AND gate, OR gate, NOT gate, NAND gate, NOR gate, X-OR gate, X-NOR gate, The universal property of NAND gate and NOR gate, Realization of basic gates.

Combinational circuits: Half adder, Full adder, 4-bit Parallel adders, Subtractor: Half subtractor, Full subtractor Implementation using logic gates, Decoders: 4-bit decoder, BCD to decimal decoder, Encoder: Decimal to BCD encoder, Multiplexer: 4 to 1 multiplexer, Demultiplexer: 1 to 4 demultiplexer.

Sequential Circuits: Latches: SR latch, Clocked flip-flops: SR flip-flop, D flip-flop, JK flip-flop, Positive edge-triggered flip flops, Master-slave JK flip-flop.

Unit-III

Registers: Modes of operation of registers: SISO, SIPO, PISO, and PIPO

Register transfer language, inter-register transfer, arithmetic micro - operation, logic and shift micro operation Instruction codes, instruction format, timing and control, input/output and interrupts.

Arithmetic logic unit, stack organization, addressing modes, associative memory, virtual memory, cache memory, cache coherence.

Reference Books:

- Computer Architecture and Organization, Hayes, Tata McGraw Hill
- Computer Architecture and Logic Design, Thomas C, Tata McGrawHill
- Computer System Architecture, M. Morris Mano, PHI

MCS – 102 Computer Networks

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome

1. Study the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model and TCP/IP model.
2. Acquire knowledge of Transmission Media and Error checking and correction method
3. Gain core knowledge of Asynchronous transmission Mode

Unit I

Introduction to Data communication and networking, protocols, standards and architecture, topology, transmission mode-half duplex and full duplex OSI model, Introduction to Ethernet, token ring, routers, switch, hub, bridge, gateways, private and public networks, analog and digital signals, periodic and aperiodic signals: time and frequency domain, Encoding digital to digital conversion, analog to analog conversion, digital to analog conversion, analog to analog conversion, transmission of digital data.

Unit II

Subnetting, Introduction to IP addressing- Class A/B/C/D/E, private IP address-First OCTET range
Etc. subnetting Default Subnet Mask, Class C subnetting, class B subnetting, class A subnetting.
WAN Technologies-Leased line, P to P communication, HDLC & PPP protocol-features, PPP link, PPP layer & its explanation/ role, PAP/CHAP role. Internet working: Tunneling, Fragmentation,IPV4, IPV6 Basics.

Unit III

VPN benefits, components, frame relay, packet switch network, virtual circuit Switching: Switching operations, functions, redundant paths and its problems, mode of operation of switch, Basics of NS2-About NS2 and NAM, purpose and installation, Background and architecture, protocol Support for NS2,simulation object, Basic syntax, node creation, Finish procedure, Running NS2 and NAM, Nodes & Agents, Working of NS2 commands Wired Networks- Creating links, sending traffic through NS2 links, setting link parameters, Routing Protocol support, scenario.

Reference Books:

- Data and Computer communications, William Stallings, PHI
- Data communication and networking, Behoruz A. Forouzan
- Data communication and networking, A S Godbole, Tata McGrawhill
- Network concepts and Architecture, Hancock, BPB Publications
- Data Communication and Networking, Tannenbaum, PHI

MSC – 103 Java Programming

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Describe the features of Java
2. Develop programs with basic programming constructs.
3. Experiment with branching & Looping and Arrange data in Arrays.
4. Formalize the OOP concept and validate its real world implementation

Unit – I

JAVA: Introduction to Object Orientated Programming, Abstraction, Object Oriented Programming Principles, Features of JAVA, Introduction to JAVA byte code, Program elements; Primitive data types, variables, Input Output in Java, operators: arithmetic, assignment, logical, bit wise, relational , Boolean logical operators, operator precedence.

Control statements: Java's Selection Statements, if statement, switch statement, Iteration statements, while, do-while, for-each, Nested loop, Jump Statement, using break, continue, return. Arrays, One & Two Dimensional Array

Unit – II

Object and classes: Objects, constructors, returning and passing objects as parameter. Inheritance: Definition & its Types, Extended class, usage of Super, Overloading and overriding methods, Abstract classes, using final with inheritance.

STRING HANDLING: String constructors, special string operation, character extraction, searching and comparing string, string Buffer class.

PACKAGE AND INTERFACES: Defining package, access modifiers, importing package, Defining and implementing interfaces.

Unit – III

EXCEPTION HANDLING: Exception handling fundamentals, Exception types, try, catch and multiple catch statements. Usage of throw, throws and finally.

THREADING: Multithreading, multiprocessing, life cycle of thread, Garbage collection.

File handling: input and output stream.

Applet: applet Fundamentals, applet life cycle, using paint method and drawing polygon.

Reference Books:-

- Introduction to Java Programming, Y. Daniel Liang, PHI.
- Java Complete Reference, Patrick Naughton, Tata McGraw Hill.
- The Java Handbook, Patrick Naughton, Tata McGraw Hill.
- Introduction to Java Programming, E Balaguruswamy, PHI.

MSC – 104 (a) Electronic Data Processing

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Compare and Contrast between different types of databases.
2. Optimize the operations
3. Implement basic operations of database language
4. Handle the events occurring on database and explicit error handling

Unit – I

Overview and History of DBMS, Basic DBMS terminology, File Processing System v/s DBMS, advantages and disadvantages of DBMS, DBA and his responsibilities, Data Abstraction, Data independence, Architecture of DBMS: Client /Server architecture, 2 Tier & 3 Tier. Data Models, Entity Relationship model: Attributes and Entity Sets, degree of relationship, Enhanced ER Model: Generalization, Specialization, Aggregation. File organization. Types of Keys, E.F.Codd's rules, Relational Algebra, Normalization, Database integrity

UNIT – II

Introduction to SQL: Characteristics and Components of SQL, SQL data types and literals, Types of SQL commands, SQL operators. Table Constraints: Null Constraint, Primary Key, Unique key constraint, Foreign Key constraint, domain key constraint, Check Constraints, & Not Null. Searching, Matching & Basic Oracle Functions: String, Numeric, and Aggregate Functions. & Queries based on group by clause, order by clause, having clause, Subqueries & joins.

UNIT – III

Introduction to PL/SQL and its advantages over SQL, PL/SQL block structure, variables and constants, attributes, character set, data types, control structures, conditional control. Sequential control, Introduction to Cursor (Implicit & Explicit),Error handling in PL/SQL, creating function & procedure, package functions, package procedures, Oracle transactions, Database Triggers: Introduction, Use type of database Triggers,

Triggers Vs. Declarative Integrity Constraints, BEFORE Vs. AFTER Trigger Combinations, Creating a Trigger, Dropping a Trigger.

Reference Books:-

- SQL Complete Reference, Leon and Leon, Tata McGraw Hill
- SQL, PL/SQL Programming Language, Ivan Bayross, BPB Publications
- DB2 Developer's Guide, Mullins, BPB Publications
- Data Base Management System, Navathe, Pearson Education Asia.

MSC – 104(b) Mobile Application Development

Max. Marks : 100 **Min. Marks : 40**

Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Define Android OS and its architecture.
2. Simulate the process of application life cycle.
3. Outline the Application development in Android.
4. Create a general purpose application for android OS.

Unit I

Introduction to mobile computing, Novel applications, Mobile services, System architecture, protocols Fundamentals of Android Development: Introduction to Android., The Android SDK, Understanding the Android Software Stack, Installing the Android SDK, Creating Android Virtual Devices, Creating the First Android Project, Using the Text View Control, Using the Android Emulator.

Unit II

The Android Debug Bridge (ADB), Basic Widgets Understanding the Role of Android Application Components, Event Handling, Displaying Messages through Toast, Creating and Starting an Activity, Using the Edit ext Control. Building Blocks for Android Application Design, Laying Out Controls in Containers, utilizing resources and media

Unit III

Using Selection Widgets and Debugging Displaying and Fetching Information Using Dialogs and Fragments Advanced, Android Programming: Internet, Implementing drawing and animations, displaying web pages and maps, communicating with SMS and emails, creating and using content providers: creating and consuming services, publishing android applications

Reference Books:-

- Android Application Development, Rick Rogers, O'Reilly.
- Starting with Android, M.M. Sharma-Rashmi Aggarwal, BPB Publications.

Course Structure in Semester - II

Paper Code	Nomenclature	Contact Hours Per Week	Credits	Total Marks		Max. Marks	Min. Marks	Exam. Duration
				CIA	ESE			
MSC – 201	Open Source Technologies	06	06	30	70	100	40	3 Hr.
MSC – 202	Computer Graphics	06	06	30	70	100	40	3 Hr.
MSC – 203	Programming in Python	06	06	30	70	100	40	3 Hr.
MSC – 204	A. Web Development **OR** B. Image Processing	06	06	30	70	100	40	3 Hr.
MSC – 205	Operating System (Linux Shell Programming) & Computer Graphics – Laboratory	06	03	15	35	50	20	3 Hr.
MSC – 206	A. Python Programming & Web Development – Laboratory **OR** B. Python Programming & Image Processing – Laboratory	06	03	15	35	50	20	3 Hr.
AEC-201 *(Ability Enhancement Course)*	**1.** Adv. Communication Skills **OR** **2.** Adv. Comp. Application	02	02	15	35	50	20	2 ½ Hr.
			Semester Total			**550**	**220**	

MCS – 201 Open Source Technologies

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Understand the structure and functionalities of an OS
2. Apply scheduling algorithms
3. Apply different page replacement algorithms
4. Understand concept of memory management

Unit I

Introduction to Operating Systems, goals of OS, operation of OS, classes of OS, batch processing, multi-processing, time sharing, distributed, real time systems, system calls, structure of OS, layer design of DOS, Unix.
Process concept: Process scheduling, scheduling criteria, long medium short-term scheduling, CPU scheduling, Inter Process Communication, Overview of Threads, Types of threads.

Unit II

Memory Management: Logical versus physical address, swapping, contiguous allocation, Fragmentation, compaction, segmentation, paging, , page replacement algorithm, virtual memory, demand paging, thrashing, allocation of frame.
Process Synchronization: Need of synchronization, Critical section problems Critical section, classical problems of synchronization: producer-consumer problem, dining-philosopher problem, monitor and semaphores.

Unit III

Dead lock: characterization, methods for handling dead locks, prevention, avoidance.
Linux Operating System: Linux architecture, Linux File System, Kernel, directory commands, file commands, vi editor, types of Shell, meta characters, locating files in Linux, filter, pipe, absolute and relative path, soft and hard link, shell variables, local and global variables, positional parameters, if, while, for, case, shift, tar, basic networking commands in Linux.

Reference:

- Advance Unix – A Programmer's Guide, Prata, SAMS

- Operating System Concepts, Galvin, Addison Wesley
- Operating Systems, Ritchie, BPB Publications.
- Unix System V Primer, Prata, BPB Publications

MCS – 202 Computer Graphics

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome

1. Understand the structure of modern computer graphics systems and Input output Device and implement various algorithms to scan, convert the basic geometrical primitives
2. To define the fundamentals of 2D transformations
3. To describe the importance of Clipping, viewing and projections
4. To learn the basic principles of 3- dimensional transformation along with surface identification and Curves

Unit I

Interactive graphics, passive graphics, advantage of interactive graphics, application, Hardware (Video Display Devices: CRT, DVST, Emmisive & Non Emmisive) & software requirement of computer graphics. Raster and Random scan system.

Algorithm: - Line (DDA algorithm, Bresenham's line algorithm), Circle(Midpoint circle algorithm, Bresenham's line algorithm), Ellipse (Midpoint ellipse algorithm), Area Filling Algorithm (Scan-Line fill, Boundary fill, Flood fill).

Unit II

2D Transformation and their matrix representation (translation, rotation, scaling, reflection, shearing, General pivot-point rotation, general fix scaling, composite transformation, affine transformations, window-to-view port transformation of 2D.

Clipping in Raster, point clipping, Line clipping, Cohen-Sutherland Line clipping Algorithm, Cyrus-Beck Line clipping Algorithm, Liang-Barsky Line clipping Algorithm, Polygon clipping, Text Clipping.

Unit III

Photoshop: Introduction, terms: layer, intensity, resolution, opacity, its features, Opening and Importing images, Creating Documents with different sizes (default, international, custom), Editing images Marquee: Rectangular Marquee Tool & Elliptical marquee tool & single row marquee tool, single column marquee tool. Move tool, Selection Tools: magic wand tool, quick selection tool, lasso tool: polygonal lasso tool, magnetic lasso tool, Crop tool, slice tool, slice select tool, eyedropper tool, color sampler tool, ruler tool: guidelines, Brush tool: Spot healing brush tool, healing brush tool, patch tool, red eye tool, brush tool. working with layers & layer styles, Free Transform, Scale, Rotate, Distort, Skew, Scale, Perspective, Eraser tool, background eraser tool magic eraser, gradient tool paint bucket tool.

Reference Books:

- Principles of Interactive Computer Graphics, Newman and Sproull, Tata McGraw Hill
- Computer Graphics, Hern & Becker, Pearson Publication (LPE)
- Computer Graphics, Plastok and Gordon Kalley, McGraw Hill
- Computer Graphics, Cornel Pokorny, BPB Publications.

MCS – 203 Programming with Python

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome

1. Improve programming skills
2. Hands on Regular Expression
3. Ability to Text Processing scripts

Unit- I

Python Introduction: Keywords, Identifiers, Indents, Input Output Basic Syntax, Variable, Dynamic Typing, Data Types (Mutable and Immutable), Built-in Conversion Methods.
Operator: Arithmetic, Comparison, Logical, Identity, Membership.
Control Statements: Conditional (If , If- else, Elsif, Nested if-else), Looping (While, For, Nested loops), Break, Continue, Pass.
Array: Introduction, Creation, Traverse, Insertion, Deletion, Search, Update.

Unit- II

String: Introduction, Types, Escape Sequences, Formatting, Operators, Built-in Methods (Capitalize, Upper, Lower, Title, Find, Count, Isalpha, Isdigit, Islower, Isupper), Basic Operations (Accessing, Updating, Concatenation).
List & Tuple: Introduction, Accessing, Operators, Built-in Methods (Len, Max, Min, Append, Insert, Remove, Pop, Reverse, Sort, List), Basic Operations (Updating, Delete, Concatenation, Indexing, Slicing).
Set:Introduction, Accessing, Built-in Methods (Add, Update, Clear, Copy, Discard, Remove), Operations (Union, Intersection, Difference).
Dictionary: (Single Dimensional) Introduction, Accessing, Updating, Deleting, Viewing values in dictionaries, Built-in Methods (Len, Max, Min, Pop, Clear, Items, Keys, Values, Update).

Unit- III

Function: Defining, Calling, Function Arguments (Required, Keyword, Default, Variable Length) Anonymous Functions, Global and Local Variables.
Modules: Introduction, Importing Module, Built-in Modules (Math, Statistics, Random).
Package: Creating, Installing, Importing Modules from the Package.
Errors & Exception: Error Types, Exception Handling - Introduction, Try, Except, Else, Finally.
File Input-Output: Opening and Closing files, Reading and Writing files.
Reference Books:

- Let Us Python – Yashavant Kanetkar, BPB Publications.
- Python The Complete Reference – Martin C. Brown, McGraw Hill
- Core Python Programming – R. Nageswara Rao, Dreamtech Press.

MCS – 204 (a) Web Development

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome

1. To impart knowledge server side programming using PHP
2. To Develop the decision making statement logic under different concepts using XAMP server
3. To gain ability to develop web applications database connectivity using MYSQL Database

Unit – I

PHP ─ Introduction, Common Uses of PHP, Characteristics of PHP, PHP ─ Environment Setup (XAMPP),Installation on Windows, PHP ─ Syntax, Running PHP Script from Command Prompt PHP ─ Variable, Local Variables, Global Variables, Static Variables, Constants, Operator Types, Precedence of Operators

Unit – II

PHP: Decision Making: If...Else Statement, ElseIf Statement, Switch Statement,
Loop Types:, while , do...while, for, for each, break, continue ,
Arrays : Numeric Array, Associative Arrays, Multidimensional Arrays,
Strings function, Web Concepts, GET and POST, File Inclusion, File & I/O

Unit – III

PHP : Functions, Cookies, Sessions, Sending, File Uploading, Error and Exception Handling, PHP PHPand MySQL: Connecting to MySQL Database, Create MySQL Database Using PHP, Insert MySQLDatabase Using PHP, Delete Data to MySQL Database, Retrieving Data from MySQL Database
Reference Books:-

- PHP A Beginners Guide – Vikram Vaswani – McGraw Hill
- Programming PHP – Kevin Tatroe, Peter Macintyre – O'Reilly PHP & My SQL Web Development – Laura Thompson & Luke Welling – Addison Wesley

MCS – 204 (b) Image Processing

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcomes

1. Apply knowledge of mathematics for image understanding and analysis.
2. Design and analysis of techniques / processes for image understanding.
3. Design, realize and troubleshoot various algorithms for image processing case studies.
4. Select the appropriate hardware and software tools (Contemporary) for image analysis.

Unit I

Introduction and Digital Image Fundamentals Digital Image Fundamentals, Human visual system, Image as a 2D data, Image representation – Gray scale and Color images, image sampling and quantization

Image enhancement in Spatial domain: Basic gray level Transformations, Histogram Processing Techniques, Spatial Filtering, Low pass filtering, High pass filtering

Filtering in the Frequency Domain: Preliminary Concepts, Extension to functions of two variables, Image Smoothing, Image Sharpening, Homomorphic filtering

Unit II

Image Restoration and Reconstruction: Noise Models, Noise Reduction, Inverse Filtering, MMSE (Wiener) Filtering

Color Image Processing: Color Fundamentals, Color Models, Pseudo color image processing

Image Compression: Fundamentals of redundancies, Basic Compression Methods: Huffman coding, Arithmetic coding, LZW coding, JPEG Compression standard

Unit III

Morphological Image Processing: Erosion, dilation, opening, closing, Basic Morphological Algorithms: 04 08 hole filling, connected components, thinning, skeletons

Object Recognition and Case studies Object Recognition- patterns and pattern classes, recognition based on decision – theoretic methods, structural methods, case studies – image analysis Application of Image processing in process industries

Reference Books:

- Gonzalez & Woods, —Digital Image Processing‖, 3rd ed., Pearson education, 2008
- Jain Anil K., —Fundamentals Digital Image Processing‖, Prentice Hall India, 2010
- Rangaraj M. Rangayyan, —Biomedical Image Analysis‖, CRC Press, 2005
- Pratt W.K, —Digital Image Processing‖, 3rd ed., John Wiley & Sons, 2007
- Digital Image Processing, 3rd Edition, by Rafael C Gonzalez and Richard E Woods.
- Publisher: Pearson Education

Course Structure in Semester – III

Paper Code	Nomenclature	Contact Hours Per Week	Credits	Total Marks		Max. Marks	Min. Marks	Exam. Duration
				CIA	ESE			
MSC – 301	Cloud Computing	06	06	30	70	100	40	3 Hr.
MSC – 302	Data Warehouse& Mining	06	06	30	70	100	40	3 Hr.
MSC – 303	Programming in Visual Basic.Net	06	06	30	70	100	40	3 Hr.
MSC – 304	A. Artificial Intelligence **OR** B. Salesforce	06	06	30	70	100	40	3 Hr.
MSC – 305	Data Mining (WEKA) & Cloud Computing - Laboratory	06	03	15	35	50	20	3 Hr.
MSC – 306	A. VB.Net & AI – Laboratory **OR** B. VB.Net & Salesforce. (Laboratory)	06	03	15	35	50	20	3 Hr.
				Semester Total		**500**	**200**	

MCS – 301 Cloud Computing

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Define cloud computing and identifying various service models.
2. Demonstrate various technologies related to IAAS.
3. Manage virtual infrastructure in distributed environment.
4. Employ PAAS platforms like Aneka and Comet Cloud.

Unit – I

Introduction to Cloud Computing

Introduction, Layers and Types of Clouds, Desired Features of a Cloud, Cloud Infrastructure Management, Service Models: Infrastructure as a Service (IaaS), Platform as a Service Providers(PaaS), Software as a Service (SaaS), Data Security: Introduction, Cloud Computing and Data Security Risk, Digital Identity.

Unit – II

Infrastructure As A Service (IAAS)

Virtual Machines, Distributed Management of Virtual Infrastructures, Scheduling Techniques for Advance Reservation of Capacity, Cluster as a Service, Cloud Storage, Technologies for Data Security in Cloud Computing.

Unit – III

Platform As A Service (PAAS)

Technologies and Tools for Cloud Computing, Aneka Cloud Platform, Hybrid Cloud Implementation, Comet Cloud, Autonomic Behavior of Comet Cloud.

Software As A Service (SAAS)

Introduction of SAAS, Advantages & Disadvantages, Introduction of Microsoft office 365, Google Apps & CloudSim.

Reference Books:

- Cloud Computing, A Practical Approach Paperback by Toby Velte, Anthony Velte, McGraw Hill Education.
- Cloud Computing by Sandeep Bhowmik, Cambridge University Press.
- Cloud Computing by Rao M.N., PHI Learning Pvt Ltd.

MCS – 302 Data Warehouse & Mining

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**
Learning Outcome:

On successful completion of the course, the students will be able to

1. Understand the concepts of data warehouse and data mining
2. Analyze transaction databases for association rules
3. Use classification methods and various clustering techniques for categorizing data

Unit - I

Data Warehousing: Introduction to Data Warehouse, Data mart, Data warehouse architecture, Multidimensional Data Model (data cube) OLAP Techniques: Roll-up, slicing and dicing, drilldown, pivot, Approaches to OLAP servers (MOLAP,ROLAP,HOLAP) OLTP, Warehouse schema(star schema, snowflake schema, fact constellation) metadata,. Data Warehouse ETL Process (data extraction, data cleaning, data transformation, loading).

Unit – II

Data Mining: Introduction, Definition, KDD vs. DM, DBMS vs. DM, DM Techniques: verification model, discovery model: discovery of association rule, discovery of classification rule, clustering, discovery of frequent episodes, deviation detection, Issues and Challenges in DM, DM Applications (Business and E-commerce, Scientific, Engineering and Health care, Web data)

Unit – III

Association Rules, Market basket analysis, Association Rules: Apriori Algorithm, Partition, Incremental, FP-tree growth algorithms, learning techniques(supervised and unsupervised)
Classification: Hierarchical and non-hierarchical techniques, Partitioning,
Clustering: K-MEDOID Algorithm K-means clustering, hierarchical clustering.
Decision Trees: decision tree, types of decision tree Decision tree induction, Tree pruning, Extracting classification rules from decision trees, Decision tree construction algorithms: CART, ID3, J48, Naïve Bayes. Decision tree construction with presorting.

Reference Books:

- Data Warehousing in the Real world", Anahory S, Murray D, Addison Wesley
- Building the Data Warehouse, Inmon W. H. Wiley Dreamtech
- Data Mining ,Prof. ArunPujari,University Press
- Alex Berson, Stephen J. Smith, Data Warehousing, Data Mining and OLAP, McGrawHill.
- D. Hand, H. Mannila, and P. Smyth, Principles of Data Mining, MIT Press.

MCS – 303 Programming in Visual Basic.Net

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**
Learning Outcome:

On successful completion of the course, the students will be able to

1. Understand the .net Framework
2. Know the use of variables and operators
3. Design user interface and apply looping and decision making .
4. Connect with database

Unit - I

Overview of .NET Framework

What is .NET framework, Origins of .NET, Architecture & Components, Common Language Runtime, Common Type System, Common Language Specification, MSIL, Framework Base Classes & Namespaces, IDE, .NET Languages.

Visual Basic Language Features:

Introduction to VB.NET, Program Structure and Code Conventions, Data Types & Variables, Constants & Enumerations, Operators,

Unit – II

Decision making & Looping, Arrays & Strings, Date & Time, Procedures in VB.

Building a User Interface:

The Visual Basic Environment, Event-Driven Programming, Building Forms: The Basics & Advanced Techniques, Working with Traditional Controls: Label Control, Text Box, Creating Buttons, Option Buttons, List Box, Combo Box.

Unit – III

Using Advanced Controls: Creating Timers, Dialog Boxes: OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Picture Box, List View Control, Tree View Control, Menus and Toolbars.

Working with Database:

Introduction to ADO.NET, Connecting to a database, DataTables, DataRow, Navigating records, Adding, editing, and deleting records.

Reference Books:

- The Complete Reference Visual Basic .NET, Jeffery R Shapiro (McGraw−Hill/Osborne)
- Application of .NET Technology, Module- 4.1-R4 By Prof. Satish Jain (BPB Publications)

MCS – 304 (a) Artificial Intelligence

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome

On successful completion of the course, the students will be able to

1. Understand basic principles and application of AI
2. Represent knowledge in various ways
3. Solve various problems by applying a suitable search method
4. Understand key concept of learning

Unit I

Definition of AI, Applications of AI, knowledge-based systems, representation of knowledge, organization and acquisition of knowledge.

State space, Production system and its components, problem characteristics, production system characteristic, Problems (8-Puzzle problem, Tower of Hanoi, Cannibals and Missionaries and Travelling Salesman Problem)

Search problems: DFS, BFS, Heuristics Search (Generate and test, Greedy or Best First search).

Unit II

Syntax, semantics of propositional logic, syntax and semantics of FOPL, conversion to clausal form. Inference rule, resolution principles.

Non-deductive inference methods, truth maintenance system, fuzzy logic, Bayesian probabilistic inference, associative networks, frame networks.

Unit III

Concept of learning: Inductive and deductive, rote learning, Components of Learning Model, Performance Measures, Types of Learning (Supervised, Unsupervised, Active & Reinforcement).

Concept of expert system, need for an expert system, Characteristics & features of an expert system, Components of an expert system, Stages in the development of an expert system, Application areas of Expert System.

Reference Books:

- Introduction to AI & Expert System – Patterson - PHI
- Artificial Intelligence - Elaine Rich & Kevin Knight – MGHill
- Artificial Intelligence - Luger – Pearson

MCS – 304 (B) Salesforce

Max. Marks : 100 **Min. Marks : 40**
Credit : 6 **Duration : 3 Hrs**

Learning Outcome:

On successful completion of the course, the students will be able to

1. Understand the concepts of cloud service models
2. Design applications on Salesforce
3. Generate and export custom reports
4. Design and manage organization's data

Unit – I

Introduction to Cloud Computing, What is Cloud Computing, Advantages, Layers – Client, Application (Software as a Service (SaaS)), Platform (platform as a service (PaaS)), Infrastructure (infrastructure as a service" (IaaS)), Server. Deployment Models – Public cloudm Community Cloud, Hybrid Cloud, Private Cloud. Introduction to Salesforce, What is salesforce.com, Advantages, Products and Services – CRM – Salesforce CRM and other CRM, AppExchange, Configuration, Web services, Mobile support.

Introduction to Force.com Platform - Registering Developer Edition with Salesforce.com, Standard applications, Standard Tabs, Standard Objects and relationships, Links. Setup page – Personal Setup, Application Setup and Administration Setup.

Designing Applications on Force.com – I - Creating new application, Creating Custom objects, Creating Tabs – Custom Tabs, Web tabs, Adding text, Currency, Checkbox, Date fields, Creating Picklists, Field Dependencies.

Unit – II

Designing Applications on Force.com - II - Encrypted fields, field help, and field history tracking, Use master detail, lookup, and many-to-many Relationships, Custom button and links Creation, Rollup Summary field.

Manage security Understand salesforce licenses ,governor limits, Profile, create profile, create user, Organization-Wide-Default, Sharing Rule, Roles , understand object and record based sharing, Login history, password policies, user session settings, set trusted IP range, public group

Sales and Service Understand sales cloud using sales object -Product, price book, campaign, lead, account, contact, opportunity, Quotes, contract Understand Service Cloud using service objects – Account, contact, case, Solution Lead and case assignments, queue, web to case, web to lead, escalation rule, email to case , auto response.

Unit – III

Designing Applications on Force.com Automation –Creating an approval Process, Create an Email template for approvals, Create an Approval Process, create a Custom Profile, Create User, Test the Approval Process

Designing Applications on Force.com Automation –Workflows, Introducing Workflow Rules and workflow actions, Email Alerts – Email templates, Tasks, Field Updates – Queues and Time Dependent Workflow Actions. Workflow immediate action and time dependent workflow

Designing Applications on Force.com Automation –Process Builder, Create process builder, difference between process builder and workflow, immediate action and time dependent workflow, immediate actions – Create record, update record, email alert, call flow, call process etc. create process builder versions.

Reports and Dashboard –Introducing Reports and Custom Reports, Exporting Reports, Dashboards – Creating and Editing Dashboards, Adding Dashboard Snapshots to Home Page, Creating Additional Reports, Creating Custom Report Types. Design Home page

Reference Books:

- Beginning Salesforce Developer, by Michael Wicherski, APress
- Salesforce Architect's Handbook, by Dipanker Jyoti, James A. Hutcherson, APress
- Salesforce Platform Developer, by Jan Vandevelde, Gunther Roskams, Packt Publishing Limited

Course Structure in Semester – IV

Paper Code	Nomenclature	Contact Hours Per Week	Credits	Total Marks		Max. Marks	Min. Marks	Exam. Duration
				CIA	ESE			
MSC – 401	Industrial Training – Project (Internship)	24	24	120	280	400	160	90 days
MSC – 402	Project Report Presentation	06	06	30	70	100	40	3 Hr.
GE-401 *(Generic Elective)*	1. Tax Management **OR** 2. Human Rights	02	02	15	35	50	20	2 ½ Hr.
				Semester Total		**550**	**220**	

MCS – 401Industrial Training (Internship) - Project

Max. Marks : 400 **Min. Marks : 120**
Credit : 24 **Duration : 5 Hrs**
Learning Outcome:

On successful completion of the course, the students will be able to

- Express technical and behavioral ideas and thoughts
- Self learned new tools, algorithms and techniques that contribute to the software solution
- Test and validate conformance of the developed prototype against the original requirements of the problem

- 75 % Attendance during the internship is compulsory.
- Internship Duration 90 Days / (180 Hours)
- The project work should not be done in a group. Each student shall be allotted one project and 2 copies should be submitted to the College.
- The Project Report work shall be assessed by one internal and one external examiner only of a batch of 20 students in a day.

SOPHIA GIRLS' COLLEGE,
(AUTONOMOUS)
AJMER

Scheme of Examination
And
SYLLABUS

2020-21(Batch)

FOR

MASTER OF SCIENCE
(CHEMISTRY)

Under
Choice Based Credit System

Semester I to IV

CHEM – 304 Oxidation, Reduction And Rearrangement Reactions In Organic Compounds

Max. Marks : 100 **Min. Marks: 40**
Credits: 06 **Duration: 3 Hrs**
Learning Outcomes:
On successful completion of the course student will be able to-

1. Review the oxidation reaction of various compunds.
2. Discuss the reduction of different functionalities in organic molecules.
3. Elaborate the mechanism of various rearrangement reactions.

Unit I

Oxidation
Introduction, Oxidation of Hydrocarbons- alkenes, aromatic rings, saturated C-H groups (activated and inactivated), Alcohols, diols, aldehydes, ketones, carboxylic acids, amines, hydrazines and sulphides.

Unit II

Reduction
Introduction, Reduction of Hydrocarbons- alkenes, alkynes and aromatic rings, aldehydes, ketones, carboxylic acids and derivatives, epoxides, nitriles, nitro compounds and nitroso compounds.
Reduction by Hydride transfer reagents- $LiAlH_4$, $NaBH_4$, mixed lithium aluminium hydride- aluminium chloride reagents, DIBAL-H, Sodium cyanoborohydride, Sodium triacetoxyborohydride, borane and derivatives.

Unit III

Rearrangements
Introduction, general mechanistic considerations-nature of migration, migratory aptitude, memory effects.
A detailed study of the following rearrangements:
Pinacol- Pinacolone, Wagner-Meerwein, Demjanov, Dienone- Phenol rearrangement, Arndt-Eistert synthesis, Beckmann, Hofmann, Curtius, Lossen, Schmidt reaction, Baeyer-Villiger rearrangement, Dakin rearrangement,Benzilic acid, Favorskii, Neber, Stevens, Wittig, Jacobsen, Hofmann- Martius, Fischer- Hepp, Benzidine, Nazarov,Shapiro reaction.

Reference Books:

- Jerry March: *Advanced Organic Chemistry*, John Wiley and Sons.
- F.A. Carey and R.J. Sundberg: *Advance Organic Chemistry*, Plenum.
- Peter Sykes: *A guide Book to Mechanism in Organic Chemistry,* , Longman
- C.K. Ingold: *Structure and Mechanism in Organic Chemistry*, Cornell University Press.
- H.O. Housee: *Modern Organic Reactions*, Benjamin.
- S.M. Mukherji and S.P. Singh: *Reaction Mechanism in Organic Chemistry*, Macmillan
- W. Carruthers, I. Coldham: *Modern Methods of Organic Synthesis*, Cambridge.

CHEM – 402(A): SUPRAMOLECULAR AND BIOINORGANIC CHEMISTRY

Max. Marks : 100 **Min. Marks: 40**
Credits: 06 **Duration: 3 Hrs**

Learning Outcomes:

On successful completion of the course student will be able to-

1. Analyse different aspects of supra molecular chemistry and supramolecular reactivity and catalysis.
2. Discuss the role of metalloenzymes in biological processes and metals in medicine.
3. Summarize the structure and mechanism of oxygen transport proteins and concepts of nitrogen fixation.

Unit I

1. **Introduction-** Definition and development of Supramolecular Chemistry, Classification of Supramolecular Host- Guest Compounds, Nature of Supramolecular Interactions- Ion-Ion Interactions, Ion-dipole Interactions, Dipole- Dipole interaction, Hydrogen bonding, Cation- π interaction, Anion- π interactions, π - π interactions, vander wall forces and Crystal Close packing, Closed shell Interactions
2. **Molecular recognition:** Introduction to recognition, information and complementarity, Principle of molecular receptor designs, Spherical recognition, tetrahedral recognition, Recognition of ammonium ions and neutral molecules, multiple recognition by coreceptor molecules.
3. **Supra molecular reactivity and catalysis-**Introduction, Catalysis by cation, anion and metalloreceptor molecules

Unit II

1. **Metalloenzymes and their role in biological systems**
   Zinc enzymes- carboxypeptidase A and carbonic anhydrase, Iron enzyme- cytochrome P-450, catalase and peroxidase, Copper enzyme- superoxide dismutase, Molybdenum enzyme- xanthine oxidase, Vitamin B_{12}.
2. **Metals in Medicine**
   Metals deficiency and disease, toxic effects of metals, metals used for diagnosis and chemotherapy with particular reference to anticancer drugs based on Pt.

Unit III

1. **Nitrogen fixation:**
   Biological nitrogen fixation and its mechanism, nitrogenase, chemical nitrogen fixation and other nitrogenase model systems.
2. **Oxygen transport and oxygen uptake proteins:** Metalloporphyrins, Role of Iron in living systems, Structural feature of Heme group in Hb and Mb, Functions of Hb and Mb, Characteristics of oxygen binding interactions with Hb and Mb, Cooperativity, Bohr's Effect, Poisoning effect of CO and other Ligands, Genetic Defects, Non-heme proteins: hemerythrin and hemocyanin.

Reference Books:

- J.M. Lehn: *Supramolecular Chemistry*, VCH.
- Dr. AK Goswami, Dr. Rekha Dashora: *Supramolecular and Bioinorganic Chemistry*, Pragati Prakashan
- J.W. Steed, J.L. Atwood: *Supramolecular Chemistry,* John wiley and Sons
- P.S. Kalsi, J.P. Kalsi: *Bio-organic, Bio-inorganic and Supramolecular Chemistry*, New age International
- Ajay Kumar Bhagi, G.R. Chatwal: *Bioinorganic and Supramolecular Chemistry*, Himalaya Publishing House.
- Berttini, H.B. Gray, S.J. Valentine: *Bioinorganic Biochemistry*, University Science Books.
- S.J. Lippard and J.M. Berg: *Principles of Bioinorganic Chemistry*, University Science Books.
- R.R. Chirchton: *Biological Inorganic Chemistry*, Elsevier
- Ajai Kumar: *Organometallic and Bioinorganic Chemistry*, Aarush Education

SOPHIA GIRLS' COLLEGE,
(AUTONOMOUS)
AJMER

Scheme of Examination
And
SYLLABUS

2020-21(Batch)

FOR

MASTER OF ARTS
(HISTORY)

Under
Choice Based Credit System

Semester - I to IV

इतिहासकारों का सबाल्टर्न समूह रणजीत गुहा, गायत्री स्पीवाक

HISM 202: ADMINISTRATIVE AND SOCIO-ECONOMIC IDEAS AND INSTITUTIONS OF ANCIENT INDIA

Max. Marks: 100 **Min. Marks: 40**
Credits: 06 **Duration 3 hrs.**

Course Learning Outcomes: On successful completion of the course, the students will be able to:-

1. Trace the evolution of state and administration in ancient India
2. Develop an in-depth understanding of the socio-cultural and religious ideas and institutions in ancient India
3. Discuss the organization of trade and taxation, salient features of coinage and land grant system in ancient India.

Unit I-Administrative

Vedic Polity: Sabha and Samiti, Vidhata
State in the Age of Mahajanapadas: Janapada & Ganarajya
Emergence of State : Mauryan Administration and Judiciary- Saptanga Theory
Gupta Administration
Chola Administration

Unit II-Socio-Cultural

Varnashrama; Upanishads; Emergence of heterodox sects-Jainism, Buddhism and Ajivaks
Ashoka's Dhamma & Edicts, Mauryan Art
Sangam Literature; Gandhara, Mathura and Amravati schools of Art
Puranic Hinduism

Unit III-Economic

Vedic Economy-(Early and Post) Kara, Bhoga, Bhaga, Vishti, Shreni
Mauryan Trade Indo-Greek Coins; Indo-Roman Trade in the Kushana Period, Kushana Coins
Gupta Economy

Reading List:

- Altekar, A.S: State and Government in Ancient India, Delhi, 1972
- Drekmeir, C: Kingship and Community in Early India, California, 1962
- Ghoshal, U.N: A History of Indian Political Ideas, Bombay, 1959
- Sharma, R.S: Aspects of Political Ideas and Institutions in Ancient India, Delhi, 1968.
- Sharma, R.S: Indian Feudalism, Calcutta, 1980
- Spellman, J.W: Political Theory of Ancient India: Study of Kingship from the earliest time to Circa A.D 300, Oxford, 1964

HISM 202: प्राचीन भारत में सामाजिक आर्थिक अवधारणाएं और संस्थाएं

अधिकतम अंक :100 **न्यूनतम अंक : 40**
श्रेय 06 **अवधि : 3 घंटे**

इकाई I –प्रशासनिक

वैदिक सत्ता सभा और समिति, विधाता
महाजनपद काल में राज्य– जनपद और गणराज्य
मौर्य प्रशासन और न्यायपालिका– सप्तांग सिद्धांत
गुप्त प्रशासन
चोल प्रशासन

इकाई II –सामाजिक व सांस्कृतिक

वर्णाश्रम; उपनिषद; विषम संप्रदायों–जैन धर्म, बौद्ध धर्म और आजीवकों का उद्भव
अशोक का धम्म और अभिलेख, मौर्य कला
संगम साहित्य गांधार, मथुरा और अमरावती स्कूल ऑफ आर्ट
पुराणिक हिंदू धर्म

इकाई III –आर्थिक

वैदिक अर्थव्यवस्था (पूर्ववर्ती और परवर्ती)– कर, भोग, भाग, विष्टि, श्रेणी
मौर्य व्यापार
इंडो–ग्रीक सिक्के; कुषाण काल में इंडो–रोमन व्यापार, कुषाण सिक्के
गुप्त कालीन अर्थव्यवस्था

HISM-203: Administrative and Socio Economic History of Delhi Sultanate & The Mughals

Max. Marks: 100 **Min. Marks: 40**
Credits: 06 **Duration: 3 hrs.**

Learning Outcomes: On successful completion of the course, the students will be able to:-

1. Comprehend the literary sources of Delhi Sultanate and Mughal period as sources of administrative and socio economic history of the period.
2. State the salient features and evolution of administrative system during Delhi Sultanate and Mughal period.
3. Understand the characteristics and organization of Delhi Sultanate and Mughal society and economy.

Unit I-Administration under Delhi Sultanate & Mughals

Major literary sources of Sultanate period: Minhaj-us-Siraj's *Tabaqat-i-Nasiri,* Ziauddin Barani's *Tarikh-i-Firozshahi*,
Major literary source of Mughal period: Abul Fazl's *Akbar-Namah*
Delhi Sultanate Administration: Central, Provincial and Local administration.
Mughal Administration – Central, Provincial and Local: Mansabdari and Jagirdari Systems.
Sher Shah's Administrative Reforms

Unit II-Economy under Delhi Sultanate & Mughals

Agriculture, Irrigation system, Peasantry
Industries –Cotton Textiles, Handicrafts, Agro-based industries
Internal and External Trade & Trading Centers, Coming of Europeans
Hundi (Bills of Exchange)

Unit III-Society under Delhi Sultanate & Mughals

Ruling Class, the Ulemas, the Mercantile and Professional Classes
Rural society – Petty Chieftains, Village Officials, Cultivators, Slaves
Position of Women – Zanana System
Centres of Education in Medieval India.

Reference Books

- Habib, M., and K. A. Nizami, eds.The Delhi Sultanate. Vol. 5, (2 parts). New Delhi: People's Publishing House, 1992.
- Majumdar, R. C., A. D. Pusalkar, and A. K. Majumdar. The Delhi Sultanat. Vol. 6. Bombay: Bharti Vidya Bhawan, 1960.
- Majumdar, R. C., J. N. Chaudhri, and S. Chaudhuri. The Mughal Empire. Vol.7. Bombay: Bharti Vidya Bhavan, 1960.
- Chandra, S. Medieval India: From Sultanat to the Mughals. 2 vols. New Delhi: Har Anand, 2010 (4th edition).
- Richards, J. F. The Mughal Empire. New Delhi: Foundation Books, 1993.
- Aziz, A. The Mansabdari Systems and the Mughal Army. New Delhi: Idarah-i- Adabiyat, 1954.
- Habib, Irfan. The Agrarian System of Mughal India, 1526–1707. New Delhi: OUP, 1999 (2nd edition).
- Quereshi, I. H. The Administration of the Mughal Empire. Karachi: OUP, 1966.
- Quereshi, I. H. The Administration of the Sultanate of Delhi. Karachi: Pakistan History Society, 1958.
- Chandra, S. Essays on Medieval Indian History. New Delhi: OUP, 2003.
- Chaudhuri, K. N. Trade and Civilization in the Indian Ocean. New Delhi: Munshiram Manoharlal, 1985 (Indian edition).
- Moosvi, Shireen. People, Taxation and Trade in Mughal India. Delhi: Oxford University Press, 2008.

- Ojha, P N. Some Aspects of North Indian Social Life, 1556–1707. Patna: Nagari Prakashan, 1961.
- Raychaudhari, T., and Irfan Habib, eds. The Cambridge Economic History of India, 1200–1700. Vol 1. Cambridge: CUP, 1982.
- Kulke, Hermann, The State in India (1000-1700), Delhi: OUP, 1997. Chapter 9
- Habib, Mohammad and Habib, Irfan ed. Studies in Medieval Indian Polity and Culture: The Delhi Sultanate and Its Times. OUP, 2015

ISM-203: दिल्ली सल्तनत एवं मुगलों का प्रशासन और सामाजिक आर्थिक इतिहास

अधिकतम अंक :100 **न्यूनतम अंक : 40**

श्रेय 06 **अवधि : 3 घंटे**

इकाई I –दिल्ली सल्तनत और मुगलों के अधीन प्रशासन

सल्तनत काल के प्रमुख साहित्यिक स्रोत मिनहाज–उस–सिराज की तबकात–ए–नासिरी, ज़ियाउद्दीन बरनी की तारीख–ए–फिरोजशाही,

मुगल काल के प्रमुख साहित्यिक स्रोत अबुल फज़ल की अकबरनामा,

दिल्ली सल्तनत राज्य, केंद्रीय, प्रांतीय और स्थानीय प्रशासन

मुगल प्रशासन – मध्य, प्रांतीय व् स्थानीय मनसबदारी **तथा** जागीरदारी प्रणालियाँ।

शेरशाह के प्रशासनिक सुधार

इकाई II –दिल्ली सल्तनत और मुगलों के अधीन अर्थव्यवस्था

कृषि, सिंचाई प्रणाली, किसान

उद्योग–सूती कपड़ा हस्तशिल्प, कृषि–आधारित उद्योग

आंतरिक और बाहरी व्यापार और व्यापारिक केंद्र, यूरोपीय व्यापारियों का आगमन ,

हुंडी (बिल ऑफ एक्सचेंज)

इकाई III –दिल्ली सल्तनत और मुगलों के अधीन समाज

प्रशासनिक वर्ग, उलेमा, व्यापारी और व्यावसायिक वर्ग

ग्रामीण समाज – सरदार, ग्राम अधिकारी, कृषक , गुलाम

महिलाओं की स्थिति – जनाना प्रणाली

मध्यकालीन भारत में शिक्षा

HISM 204: Socio-Cultural And Political Trends In Rajasthan

Max. Marks: 100 **Min. Marks: 40**

Credits: 06 **Duration 3 hr**

Learning Outcomes: On successful completion of the course, the students will be able to:-

1. Describe the socio-religious life of medieval Rajputana.
2. Know and appreciate the evolution of art and literature in the region
3. Realize and cherish the legacy of the independent movement in Rajasthan

Unit I-Socio-Religious Life

Age of Rajputs- Origin.

Feudal System-Social Structure-Castes and Sub-Castes.

Bhakti movement and Sufism in Medieval Rajasthan-Saints and Sects- Folk Gods and Goddesses.

Unit II-Art and Culture

Temples-Forts-Havelis-Paintings.

Evolution of Rajasthani Literature with special reference to Khyats.

Folk Music & Instruments and Folk Dance & Dress and Ornaments-Folk Tales and Gathas-Fair and Festivals.

Unit III- Political Awakening

Revolt of 1857-Social Reforms.

Peasant and Tribal Movements.

Political Awakening-Newspapers-Women-education-Praja Movements -Leading Freedom Fighters Integration of Rajasthan.

Dr. Sr. Pearl
PRINCIPAL
SOPHIA GIRLS' COLLEGE
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