SYLLABUS
B.Sc. (Computer Science, Statistics, Mathematics) Part – I
Outlines of Tests Syllabi and Courses of Reading.
Note:- Every theory paper will be of three hours duration.
1st Semester

<table>
<thead>
<tr>
<th>Code</th>
<th>Core/Elective</th>
<th>Title of paper/subject</th>
<th>Hrs./Week</th>
<th>Max Maks</th>
<th>Total Credits</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td>Conti. Asmt.</td>
<td>Univ. Exam.</td>
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<tr>
<td>CSM 111</td>
<td>Core</td>
<td>Algebra</td>
<td>4</td>
<td>30</td>
<td>45</td>
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<td>CSM 112</td>
<td>Core</td>
<td>Trigonometry and Differential Calculus</td>
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<tr>
<td>CSM 113</td>
<td>Core</td>
<td>Computer Oriented Statistical Methods-I</td>
<td>3</td>
<td>20</td>
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<td>CSM 114</td>
<td>Core</td>
<td>Probability Theory-I</td>
<td>3</td>
<td>20</td>
<td>30</td>
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<tr>
<td>CSM 115</td>
<td>Core</td>
<td>Statistical Practicals-I</td>
<td>4</td>
<td>-</td>
<td>50</td>
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<tr>
<td>CSM 116</td>
<td>Elective</td>
<td>Introduction to Information Technology</td>
<td>3</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>CSM 117</td>
<td>Elective</td>
<td>Computer Programming Using C</td>
<td>3</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>CSM 118</td>
<td>Elective</td>
<td>Computer Practicals-I</td>
<td>4</td>
<td>-</td>
<td>50</td>
</tr>
</tbody>
</table>

Total: 140 310 450 24

Note: 1. The minimum pass marks in each paper is 35% in Continuous Assessment and University Examination separately subject to a minimum of 40% in aggregate.

2. In addition to above mentioned subjects, there will be a course of Qualifying Punjabi Compulsory/Elementary Punjabi as a qualifying subject.
BREAK-UP OF MARKS FOR CONTINUOUS ASSESSMENT
OF THEORY PAPERS

1. Two tests will be held and their average will be considered for assessment. 50% Marks

2. Seminars/Assignments/Quizes/Class participation 25% Marks

3. Attendance
   Marks will be given according to below criteria:
   75% attendance & above but less than 80% 60% Marks of allotted marks to attendance
   80% attendance & above but less than 85% 80% Marks of allotted marks to attendance
   85% attendance & above 100% Marks of allotted marks to attendance
CSM-111 ALGEBRA

No. of Lectures : 55
Max. Marks : Uni. Examination - 45
Int. Assessment - 30
75

to be delivered

Time Allowed : 3 Hours
Min. Pass
Uni. Examination - 35%
Int. Assessment - 35%
40% Aggregate

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

Use of scientific non-programmable calculator is allowed

SECTION-A

Mappings, Equivalence relations and partitions .Congruence modulo n.
Symmetric, Skew symmetric, Hermitian and Skew Hermitian matrices . Elementary operations on matrices. Inverse of a matrix .

SECTION-B

Linear independence of row and column vectors. Row rank ,column rank and rank of a matrix .
Applications of matrices to a system of linear ( both homogeneous and non-homogeneous ) equations. Theorems on consistency of a system of linear equations .

TEXT BOOKS


RECOMMENDED READINGS

CSM-112: TRIGONOMETRY AND DIFFERENTIAL CALCULUS

No. of Lectures: 55
Max. Marks: Uni. Examination - 45
Int. Assessment - 30
75

to be delivered

Time Allowed: 3 Hours
Min. Pass: Uni. Examination -35%
Int. Assessment -35
40% Aggregate Marks

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

Use of scientific non-programmable calculator is allowed.

SECTION-A


SECTION-B


TEXT BOOKS


RECOMMENDED READINGS

CSM-113 : COMPUTER ORIENTED STATISTICAL METHODS - I

No. of Lectures : 40
Max. Marks : Uni. Examination – 30
Time Allowed : 3 Hours
Min. Pass : Uni. Examination -35%
Max. Marks : Int. Assessment – 20
Min. Pass : Int. Assessment -35%

INSTRUCTIONS FOR THE PAPER SETTER
The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks

INSTRUCTIONS FOR THE CANDIDATE
Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed

SECTION- A
Collection of Data : Primary Data – Designing a Questionnaire and a Schedule. Secondary Data - its Major Sources including some Government Publications. Concept of a Statistical Population and Samples from a Population ;Quantitative and Qualitative Data , Discrete and Continuous Data ,Nominal, Ordinal , Ratio & Interval Scales .
Presentation of Data: Diagrammatical Representation of Data , Frequency Distribution, Graphical Representation , Histogram , Frequency Polygon , Frequency Curves and Ogives .

SECTION-B
Analysis of Quantitative Data : Univariate Data Concepts of Central Tendency , Dispersion , Skewness and Kurtosis and their Measures including those based on Quartiles and Moments. Sheppard's Correction for Moments (without derivation).

TEXT BOOKS

RECOMMENDED READINGS
INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each whereas section C will carry 14 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each whereas section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed.

SECTION- A


SECTION- B


TEXT BOOKS


REFERENCE READINGS

CSM-115: STATISTICAL PRACTICALS - I

Total Practical Sessions: 25  
(Max. Marks: 50)  
(each of two hours)

Time Allowed: 3 Hours  
(Min. Pass: 40%)

INSTRUCTION FOR THE PAPER SETTER AND THE CANDIDATES

The setting and evaluation will be done by a board of examiners consisting of Head, 
External examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to 
attempt any three exercises.

The break-up of marks for the University Examination will be as under:

Lab. Record : 10
Viva-voce : 10
Exercises : 30

Lab Course:

The exercises will be based on the syllabus of the papers CSM-113(Computer Oriented 
Statistical Methods-I) and CSM-114(Probability Theory-I).
CSM - 116 : INTRODUCTION TO INFORMATION TECHNOLOGY

No. of Lectures : 40
Max. Marks : Uni. Examination - 30
Int. Assessment - 20

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed

SECTION A

Information Technology : Introduction, hardware and software, the information processing cycle. Information systems, software and data, IT Applications; Types of computers, Anatomy of a computer, Binary numbers, Binary arithmetic, digital revolution, computer as a digital device, Moore’s Law, Bits and bytes, CPU, Memory : RAM and ROM, Registers, System buses, i/o Buses, communication with peripherals. Input and Output devices : Keyboards-virtual and ergonomic, OCR, handwriting recognition, bar code and speech recognition, scanners resolution, printers-Laser, dot matrix and inkjet. Secondary Storage : Storage devices and media, sequential and random storage, tracks and sectors, speed, storage capacity, Removable media. Storage Media : floppy and hard disks. RAID, Optical discs, Increasing storage capacity, backup and smart cards.

SECTION B


TEXT BOOK :

1. Curtin D.P., Foley K., Sen K., Morin C “Information Technology” : The breaking wave, TMH.

REFERENCE READINGS:

CSM - 117: COMPUTER PROGRAMMING USING “C”

No. of Lectures : 40  
Max. Marks :  
Uni. Examination  – 30  
Int. Assessment  – 20  

Max. Marks :  
Uni. Examination  – 35%  
Int. Assessment  – 35%  

40% Aggregate

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed

SECTION-A

Problem Solving with Computer : Algorithms, Pseudocodes and Flowcharts. Data types, constants, variables, arithmetic and logical expressions, data input and output, assignment statements, conditional statements, iteration.
Arrays, string processing, User-defined data types.

SECTION-B

Functions recursion, Parameter Passing by reference & by value. Structures, Multiple structures, Arrays of structures, Unions, Files: Reading, Writing text and binary files, Pointers, character pointers, pointers to arrays, Array of pointers, pointers to structures.
Debugging, testing and documentation; structured programming concepts, top down & Bottom-Up design approaches.
(The programming language C is to be taught along with the course in detail)

TEXT BOOKS


REFERENCE READINGS

1. Richie and Kerningham, "C Programming".
3. D. Dromey: How to solve it by Computer (Prentice-Hall 1985)
CSM-118 : COMPUTER PRACTICALS -I

(each of two hours)       Min. Pass : 40%
Time Allowed   : 3 Hours   Marks

INSTRUCTION FOR THE PAPER SETTER AND THE CANDIDATES

The setting and evaluation will be done by a board of examiners consisting of Head, External examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises.

The break-up of marks for the University Examination will be as under:

<table>
<thead>
<tr>
<th></th>
<th>Marks</th>
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</thead>
<tbody>
<tr>
<td>Lab. Record</td>
<td>10</td>
</tr>
<tr>
<td>Viva-voce</td>
<td>10</td>
</tr>
<tr>
<td>Development of programmes &amp; their execution</td>
<td>30</td>
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</tbody>
</table>

Lab Course:

The exercises will be based on the syllabus of the papers CSM-113(Computer Oriented Statistical Methods-I) and CSM-117(Computer Programming using "C").
## Syllabus

**2nd Semester**


<table>
<thead>
<tr>
<th>Code</th>
<th>Core/Elective</th>
<th>Title of paper/subject</th>
<th>Hrs./Week</th>
<th>Max Marks</th>
<th>Total Credits</th>
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<td></td>
<td></td>
<td></td>
<td>Cont. Asmt.</td>
<td>Univ. Exam.</td>
</tr>
<tr>
<td>CSM 121</td>
<td>Core</td>
<td>Integral Calculus &amp; Differential Equations</td>
<td>4</td>
<td>30  45</td>
<td>75</td>
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<tr>
<td>CSM 122</td>
<td>Core</td>
<td>Geometry</td>
<td>4</td>
<td>30  45</td>
<td>75</td>
</tr>
<tr>
<td>CSM 123</td>
<td>Core</td>
<td>Computer oriented Statistical Methods-II</td>
<td>3</td>
<td>20  30</td>
<td>50</td>
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<tr>
<td>CSM 124</td>
<td>Core</td>
<td>Probability Theory-II</td>
<td>3</td>
<td>20  30</td>
<td>50</td>
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<tr>
<td>CSM 125</td>
<td>Core</td>
<td>Statistical Practicals-II</td>
<td>4</td>
<td>-</td>
<td>50</td>
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<tr>
<td>CSM 126</td>
<td>Elective</td>
<td>Object Oriented Programming Using C++</td>
<td>3</td>
<td>20  30</td>
<td>50</td>
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<tr>
<td>CSM 127</td>
<td>Elective</td>
<td>Management Information System</td>
<td>3</td>
<td>20  30</td>
<td>50</td>
</tr>
<tr>
<td>CSM 128</td>
<td>Elective</td>
<td>Computer Practicals-II</td>
<td>4</td>
<td>-</td>
<td>50</td>
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</table>

Total 140 310 450 24

### Note:

1. In addition to above mentioned subjects qualifying course of “Drug Abuse Problem, Management and Prevention” in this semester according to Letter No. 1383/SM-6 dated 12/10/2016 received from A.R.(Meetings)

2. The minimum pass marks in each paper is 35% in Continuous Assessment and University Examination separately subject to a minimum of 40% in aggregate.

3. In addition to above mentioned subjects, there will be a course of Qualifying Punjabi Compulsory/Elementary Punjabi as a qualifying subject.
BREAK-UP OF MARKS FOR CONTINUOUS ASSESSMENT OF THEORY PAPERS

1. Two tests will be held and their average will be considered for assessment. 50% Marks
2. Seminars/Assignments/Quizes/Class participation 25% Marks
3. Attendance
   Marks will be given according to below criteria:
   75% attendance & above but less than 80% 60% Marks of allotted marks to attendance
   80% attendance & above but less than 85% 80% Marks of allotted marks to attendance
   85% attendance & above 100% Marks of allotted marks to attendance
CSM 121: INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS

No. of Lectures : 55
Max. Marks : Uni. Examination - 45
               Int. Assessment - 30
                75

to be delivered

Time Allowed : 3 Hours
Min. Pass : Uni. Examination - 35%
            Int. Assessment - 35%
                40% Aggregate

Marks

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

Use of scientific non-programmable calculator is allowed

SECTION-A
Integration of irrational algebraic and transcendental functions. Reduction formulae. Definite integrals. Quadrature and rectification. Volumes and surfaces of solids of revolution.
Degree and order of a differential equation. Equation of first order and first degree. Equations in which the variables are separable. Homogeneous equations. Linear equations and equations reducible to the linear form. Exact differential equations.

SECTION-B
Linear differential equations of second order. Transformation of the equation by changing the dependent variable / the independent variable. Method of variation of parameters.

TEXT BOOKS

RECOMMENDED READINGS
CSM 122 - GEOMETRY

Time Allowed : 3 Hours  Min. Pass : Uni. Examination -35%  Int. Assessment -35%  40% Aggregate Marks

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 6 marks each where as section C will carry 21 marks.

Use of scientific non-programmable calculator is allowed

SECTION-A

Transformation of axes , shifting of origin, rotation of axes, reduction of the second degree equation into standard forms by transformation of co-ordinates. The invariants t, Δ and θ . Identification of curves represented by second degree equation.

Pole and polar, pair of tangents from a point, chord of contact ,equation of the chord in terms of midpoint and diameter of conic .

Conjugate diameters, Conjugate hyperbola .Asymptotes of a hyperbola, rectangular hyperbola . Special properties of parabola, ellipse and hyperbola.

Polar equations of conics and equations of chords, tangents and normals only .

SECTION-B


Generating lines. Confocal conicoids . Reduction of second degree equation to standard forms.

TEXT BOOKS


RECOMMENDED READINGS

CSM-123 : COMPUTER ORIENTED STATISTICAL METHODS -II

No. of Lectures : 40
Max. Marks : Uni. Examination – 30
Int. Assessment – 20

Time Allowed : 3 Hours
Min. Pass : Uni. Examination -35%
Int. Assessment -35% 40% Aggregate

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed.

SECTION - A

Bivariate Data : Scatter Diagram, Product Moment Correlation Coefficient and Its Properties, Coefficient of Determination. Spearman's Rank Correlation Coefficient. Concept of Errors in Regression, Principle of Least Square, Fitting of Linear Regression and Related Results.

SECTION-B

Multivariate Data: Concepts of Multiple Regression, Multiple and Partial Correlation Coefficients (Only Results No Derivations) and their Applications.

Analysis of Categorical Data: Contingency of Categorical Data, Independence & Association of Attributes, Various Measures of Association for Two Way Classified Data.

TEXT BOOKS


REFERENCE READINGS

CSM-124: PROBABILITY THEORY – II

No. of Lectures : 40         Max. Marks : Uni. Examination – 30  Int. Assessment – 20  50
                       Time Allowed : 3 Hours  Min. Pass : Uni. Examination – 35%  Int. Assessment – 35%  40% Aggregate

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each whereas section C will carry 14 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each whereas section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed.

SECTION- A

Standard univariate discrete distributions and properties: Discrete uniform, Binomial, Poisson, Hyper Geometric, Geometric and Negative Binomial distributions. Continuous univariate distributions: Uniform, Normal, Exponential, Gamma, Beta and Chi-square distributions.

SECTION-B

The bivariate normal distribution, the marginal and conditional probability distributions associated with the bivariate normal distribution (without derivation), Chebyshev's inequality and its applications, statements and applications of weak law of large numbers and central limit theorems (De-moivre's-Laplace and Lindeberg-Levy versions).

TEXT BOOKS


REFERENCE READINGS

CSM-125: STATISTICAL PRACTICALS-II

Total Practical Sessions: 25
(each of two hours)
Time Allowed : 3 Hours

Max. Marks : 50

Min. Pass : 40%

INSTRUCTION FOR THE PAPER SETTER AND THE CANDIDATES

The setting and evaluation will be done by a board of examiners consisting of Head, External examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises.

The break-up of marks for the University Examination will be as under:

Lab. Record : 10
Viva-voce : 10
Exercises : 30

Lab Course:

The exercises will be based on the syllabus of the papers CSM-123(Computer Oriented Statistical Methods-II) and CSM-124(Only Fitting of distributions).
CSM - 126: OBJECT ORIENTED PROGRAMMING USING C++

No. of Lectures : 40  Max. Marks :  Uni. Examination  - 30  Int. Assessment  - 20  Total  - 50

to be delivered

Time Allowed : 3 Hours  Min. Pass :  Uni. Examination - 35%  Int. Assessment - 35%  Total 40% Aggregate

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed

SECTION A


Introduction to C++: Identifier, Keywords, Constants, Operators: Arithmetic, relational, logical, conditional and assignment. sizeof operator, Operator precedence and associativity.

Type conversion, Variable declaration, expressions, statements, manipulators

Input and output statements, stream I/O, Conditional and Iterative statements, breaking control statements.

Storage Classes: Automatic, Static, Extern, Register. Arrays, Arrays as Character Strings, Structures, Unions, Bit fields, Enumerations and User defined types.


SECTION B

Inheritance: Multiple, Multilevel, Hierarchical.

Classes and Objects: Class Declaration and Class Definition, Defining member functions, making functions inline, Nesting of member functions, Members access control. this pointer. Union as space saving classes.

Objects: Object as function arguments, array of objects, functions returning objects, Const member functions. Static data members and Static member functions.

Friend functions and Friend classes.


Array of objects. Dynamic memory allocation using new and delete operators, Nested and container classes.

Scopes: Local, Global, Namespace and Class

Inheritance: Defining derived classes, inheriting private members, single inheritance, types of derivation, function redefining, constructors in derived class.

TEXT BOOKS


REFERENCE READINGS

CSM - 127: Management Information System

No. of Lectures : 40
Max. Marks : Uni. Examination  – 30
             Int. Assessment – 20
                                  50
Time Allowed : 3 Hours
Min. Pass : Uni. Examination -35%
            Int. Assessment -35%
                                  40% Aggregate

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and section C will consist of one compulsory question having seven parts of short-answer type covering the entire syllabus uniformly. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each section A and B and the compulsory question of section C. All questions of sections A and B will carry 4 marks each where as section C will carry 14 marks.

Use of scientific non-programmable calculator is allowed

SECTION A

Framework of Management Information Systems: Importance’s of MIS, Concepts of Management, information, system, Definition of MIS, information technology and MIS, nature and scope of MIS, MIS characteristics and functions.

Structure and classification of MIS: structure of MIS, MIS classification, Brief introduction of functional information system, financial information system, marketing information system, production/ Manufacturing information system, human resources information system.

Decision making and MIS: decision making, Simon’s model of decision making, types of decisions, purpose of decision making, level of programmability, knowledge of outcomes, methods of choosing among alternatives, decision making and MIS.


SECTION B

System development stages: System investigation, system analysis, system design, construction and testing, implementation, maintenance.

System development approaches (a brief introduction): waterfall model, prototyping, iterative enhancement model, spiral model.

System analysis: introduction, requirement definition, strategies for requirement definition, structured analysis tools: data flow diagram, data dictionary, decision trees, structured English, decision trees.

System Design: objectives, conceptual design, design methods, detailed system design.


Information system Planning: Information system Planning, planning terminology, the Nolan stage model, selecting a methodology, information resources management.

Information system (IS) as an Enabler: introduction, changing concepts of IS, IS as an enabler.

TEXT BOOKS


REFERENCE READINGS

1. Bentley,”System Analysis and Design”, TMH
CSM-128: COMPUTER PRACTICALS - II

Total Practical Sessions: 25  
(Each of two hours)  
Time Allowed: 3 Hours

Max. Marks: 50

Min. Pass: 40% Marks

INSTRUCTION FOR THE PAPER SETTER AND THE CANDIDATES

The setting and evaluation will be done by a board of examiners consisting of Head, External examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises.

The break-up of marks for the University Examination will be as under:

- Lab. Record : 10
- Viva-voce : 10
- Development of programmes : 30
- & their execution

Lab Course:

The exercises will be based on the syllabus of the papers CSM -126 (Object Oriented Programming using C++).