FACULTY OF SCIENCES

SYLLABUS
of
B.Sc. Computer Science
(Semester I -II)

(Under Continuous Evaluation System)

Session: 2018-19

The Heritage Institution
KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)

B.Sc. Computer Science (Session 2018-19)

Scheme of Studies and Examination

SemesterI

Course Code	Course Name	Course Type	Total	Ext. L	Ext. P	CA	Examination time (in Hours)
BCSL-1421 BCSL-1031 BCSL-1431	Punjabi(Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BCSL-1212	English (Compulsory)	C	50	40	-	10	3
BSEM-1333	Maths	C	100	80 (40+40)	-	20	3+3
BSEM-1134	Computer Science	C	100	50	30	20	3+3
BCSM-1395	Physics	C	100	60 (30+30)	20	20	3+3+3
AECD-1161	*Drug Abuse: Problem Management and Prevention (Compulsory)	AECC	50	40	-	10	3
SECF-1492	*Foundation Course	VBCC	25	25	-	-	2
Total			**400**				

SemesterII

Course Code	Course Name	Course Type	Total	Ext. L	Ext. P	CA	Examination time (in Hours)
BCSL-2421 BCSL-2031 BCSL-2431	Punjabi(Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BCSL-2212	English (Compulsory)	C	50	40	-	10	3
BSEM-2333	Maths	C	100	80 (40+40)	-	20	3+3
BSEM-2134	Computer Science	C	100	50	30	20	3+3
BCSM-2395	Physics	C	100	60 (30+30)	20	20	3+3+3
AECD-2161	*Drug Abuse: Problem Management and Prevention (Compulsory)	AECC	50	40	-	10	3
SECM-2502	*Moral Education Course	VBCC	25	25	-	-	2
Total			**400**				

B.Sc. Computer Science (Session 2018-19)

SEMESTER-I

PUNJABI COMPULSORY

COURSE CODE: BCSL -1421

;wK L 3 xzN/   **Maximum Marks: 50**
Theory: 40

                                                            CA: 10

gkm eqw ns/ gkm g[;seK

:{fBN-I

   d' ozr (eftsk Gkr) (;zgkH jofizdo f;zx fYb'A ns/ gqhsw f;zx
   ;or'Xhnk), r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

(ਉਪਰਲਾ ਸੀਬਰ ਟੇਰਰਲਾ /ਪੂ ਅੰਗ ਹਾਤ ਹਰਆਹਾਯਆ/ਰਹਾਰਰ ਵਾ ਹਰਯਾ-ਥ ਤੂ)   8nze
:{fBN-II

;z;ko dhnK gqf;X j;shnK (ihtBh BzL 1 s'A 9 se)
   (;zgkH fgqzzH s/ik f;zx, joBkw f;zx Pkw),gzikph ;kfjs
   gqekPB, nzfwqs;o.

(ਹਹਾ-ਥ ਤੂ/ ਅਾਯ/ਠਾਹਿ ਹਾਯੀ)   8 nze
:{fBN-III

   (T) g?oQk ouBk(fszB ftu'A fJe)
   (n) g?oQk   gVQ   e/   gqPBK   d/   T[so.
8 nze

:{fBN-IV

(T) GkPk tzBrhnK L GkPk dk Ne;kbh o{g, GkPk ns/ T[g-GkPk ftu
nzsso, gzikph T[gGkPktK d/ gSkD fuzBQ.
(n) gzikph GkPk L fBek; s/ ftek;   8 nze

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZsoo d/ uko :{fBN j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV
     ftu'A g[ZS/ ikDr/ jo :{fBN ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo :{fBN ftu'A fJe gqPB
     bkIwh j?. gzitK gqPB fe;/ th :{fBN ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 08 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nr'A tX s'A tX
     uko T[g gqPBK ftu eo ;edk j?.

w[ZYbh gzikph

(In lieu of Compulsory Punjabi)

COURSE CODE: BCSL-1031

;wK L 3 xzN/   Maximum Marks: 50

Theory : 40

CA: 10

gkm eqw

:{fBN-I

g?Ash nyoh, nyo eqw, g?o fpzdh tkb/ toD ns/ g?o ftu g?D tkb/ toD ns/ wksqtK (w[Ybh ikD gSkD) brkyo (fpzdh, fNgh, nXe) L gSkD ns/ tos'A . 08nze

:{fBN-II

gzikph Ppd pDso L w[Ybh ikDgSkD (;kXkoB Ppd, ;z:[es Ppd, fwPos Ppd, w{b Ppd, nr/so ns/ fgS/so) 08nze

:{fBN-III

fBs tos'A dh gzikph Ppdktbh L pkIko, tgko, foPs/Bks/, y/sh ns/ j'o XzfdnK nkfd Bkb ;zpzXs. 08 nze

:{fBN-IV

j|s/ d/ ;s fdBK d/ BK, pkoQK wjhfBnK d/ BK, o[sK d/ BK, fJe s'A ;" se frDsh PpdK ftu .

08nze

nzetzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZsro d/ uko :{FfBN j'Dr/..;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo :{fBN ftu d' gqPB g[S/ ikDr/.

2H   ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo Gkr ftu'A fJe gqPB bkiwh j?. gzitK gqPB fe;/ th Gkr ftu'_ ehsk ik ;edk j?.

3H   jo/e gqPB d/ nZm nze jB.

4H   g/go ;?N eoB tkbk i/eo ukj/ sK gqPBK dh tzv nr'A tX s'A tX uko T[g gqPBK ftu eo ;edk j?.

SEMESTER-I

B.Sc. Computer Science (Session 2018-19)

Punjab History & Culture (From Earliest Times to C. 320)
(Special Paper in lieu of Punjabi compulsory)
Course Code: BCSL -1431

Time: 3 Hours   **Max. Marks: 50**
                                                                       Theory: 40
                                                                       CA: 10

Instructions for the Paper Setters

Eight questions of equal marks (8 marks) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit -I

1. Physical features of the Punjab and impact on history.
2. Sources of the ancient history of Punjab

Unit- II

3. Harappan Civilization: Town planning; social, economic and religious life of the India Valley People.
4. The Indo-Aryans: Original home and settlement in Punjab.

Unit -III

5. Social, Religious and Economic life during later *Rig* Vedic Age.
6. Social, Religious and Economic life during later Vedic Age.

Unit -IV

7. Teaching and impact of Buddhism
8. Jainism in the Punjab

Suggested Readings

1. L. Joshi (ed): *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed); *History of Punjab* , Vol.I, Patiala 1977.
3. Budha Parkash :*Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma: *Life in Northern India*, Delhi. 1966.

SEMESTER–I
ENGLISH (COMPULSORY)

B.Sc. Computer Science (Session 2018-19)
Course Code: BCSL -1212

Time: 3 Hours   **Max. Marks: 50**
Passing Marks: 14   **Theory: 40**
                                                          Continuous Assessment: 10

Instructions for the Paper-Setter and Distribution of Marks:

The question paper will consist of 4 sections & distribution of marks will be as under:

Section-A: The question will be set from Unit I of the syllabus. Fourteen sentences would be set and the students would be required to attempt any ten. Each sentence would carry one mark.
(1x10=10)

Section-B: Two questions will be set from Unit II of the syllabus. The students would be required to attempt one paragraph out of the given two topics. It would carry five marks. The second question will be based on grammar. The students will be required to attempt any five sentences out of eight and each sentence will carry one mark.   **(2x5=10)**

Section-C: Two questions will be set from Unit III of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Section-D: Two questions will be set from Unit IV of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Texts Prescribed:
1. *Tales of Life* (Guru Nanak Dev University, Amritsar) Stories at Sr.No.1, 2, 3, 5 and 6
2. *Prose for Young Learners* (Guru Nanak Dev University, Amritsar) Essays at Sr. No. 1, 2, 3, 5, and 6
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP

The syllabus is divided in four units as mentioned below.
Unit I: English Grammar in Use, 4th Edition by Raymond Murphy, CUP (Units: 1-37)
Unit II: Paragraph Writing and English Grammar in Use (Units: 38-48)
Unit III: Tales of Life (Guru Nanak Dev University, Amritsar): Stories at Sr. No. 1, 2, 3, 5 and 6
Unit IV: Prose for Young Learners: Essays at Sr. No. 1, 2, 3, 5 and 6

B.Sc. Computer Science (Session 2018-19)

SEMESTER-I
MATHEMATICS
ALGEBRA
Course Code: BCSM -1333 (I)

Time: 3 hrs.   **Max.Marks:40**
                                                                   Passing Marks: 14

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.
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Unit–I
Linear independence of row and column vectors. Row rank, Column rank of a matrix, Equivalence of column and row ranks, Nullity of matrix, Applications of matrices to a system of linear (both homogeneous and non–homogeneous) equations. Theorems on consistency of a system of linear equations.

Unit-II
Eigen values, Eigen vectors, minimal and the characteristic equation of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.Quadratic Forms, quadratic form as a product of matrices.The set of quadratic forms over a field.

Unit–III
Congruence of quadratic forms and matrices.Congruent transformations of matrices.Elementary congruent transformations.Congruent reduction of a symmetric matrix.Matrix Congruence of skew–symmetric matrices.Reduction in the real field.Classification of real quadratic forms in variables. Definite, semi–definite and indefinite real quadratic forms. Characteristic properties of definite, semi–definite and indefinite forms.

Unit-IV
Relations between the roots and coefficients of general polynomial equation in one variable. Transformation of equations and symmetric function of roots, Descarte's rule of signs, Newton's Method of divisors, Solution of cubic equations by Cardon method, Solution of biquadratic equations by Descarte's and Ferrari's Methods.

Books Recommended:

1. K.B. Dutta: Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd., New Delhi (2002).
2. H.S. Hall and S.R. Knight: Higher Algebra, H.M. Publications, 1994.
3. Chandrika Parsad: Text book on Algebra and Theory of Equations, Pothishala Pvt.
Ltd., Allahabad.
4. S.L. Loney: Plane Trigonometry Part–II, Macmillan and Company, London.
5. Shanti Narayan and P.K. Mittal : Text Book of Matrices.

B.Sc. Computer Science (Session 2018-19)

SEMESTER-I
MATHEMATICS
CALCULUS AND TRIGONOMETRY
Course Code: BCSM -1333 (II)

Time : 3 hrs.   **Max.Marks:40**
Passing Marks: 14

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit–I

Real number system and its properties, lub, glb of sets of real numbers, limit of a function, Basic properties of limits, Continuous functions and classification of discontinuities, Uniform continuities.

Unit-II

Differentiation of hyperbolic functions, Successive differentiation, Leibnitz theorem,
Taylor's and Maclaurin's theorem with various forms of remainders, Indeterminate forms.

Unit-III

De–Moivre's Theorem and its applications, circular and hyperbolic functions and their inverses.

Unit-IV

Exponential and Logarithmic function of a complex numbers, Expansion of trigonometric functions, Gregory's series, Summation of series.

Books Recommended:

1. N. Piskunov: Differential and Integral Calculus, Peace Publishers, Moscow.

2. Gorakh Prasad: Differential Calculus, Pothishala Pvt. Ltd., Allahabad.

3. Erwin Kreyszig: Advanced Engineering Mathematics, John Wiley and Sons, 1999.

B.Sc. Computer Science (Session 2018-19)

SEMESTER- I
COMPUTER FUNDAMENTAL & PC SOFTWARE
(THEORY)
Course Code: BCSM-1134

Time: 3Hrs   **Theory: 50**
Pass Marks: 18

Instructions for Paper Setter -
Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I
1. Introduction to computer and its uses: milestones in hardware and software.
   Batch oriented/Online/real time application.
2. Computer as a system: basic concepts: stored programs, functional units and their inter–relation: communication with the computer.
3. Data storage devices and media: primary storage: storage addressed, and capacity, type of memory: secondary storage; magnetic tape – data representation and R/W: magnetic disc, fixed & removable, data representation and R/W, floppy disc drives, Winchester disc drive, conventional disc drives, Data organization, Compact Disc.

UNIT -II
1. Input/Output devices: Key–tape/diskette devices, light pen mouse and joystick, source data automation (MICR, OMR, and OCR), screen assisted data entry; portable/hand held terminals for data collection, vision input system.
2. Printed output: Serial, line, page, printers; plotters, visual output; voice response units.

UNIT–III
Introduction to Windows based operating system and Desktop icons

UNIT–IV

MS–Word:

Introduction to Word, Introduction to Parts of Word Window (Title Bar, Menu Bar, Tool Bar, The Ruler, Status Area), Page Setup, Creating New Documents, Saving Documents, Opening an Existing documents, insert a second document into an open document, Editing and formatting in document, Headers and Footers, Spell Checking, Printing document, Creating a Table Using the Table Menu and table formatting, Borders and Shading, Templates and Wizards, Mail Merge

MS Power Point:
Introduction to MS Power point, Power point elements, Templates, Wizards, Views, Exploring Power Point Menu, Working with Dialog Boxes, Adding Text, Adding Title, Moving Text Area, Resizing Text Boxes, Adding Art, Starting a New Slide, Starting Slide Show, Saving presentation; Printing Slides, Views (View slide sorter view, notes view, outlines view) Formatting and enhancing text formatting, Creating Graphs (Displaying slide show and adding multi–media).

References:
1. R.K. Taxali: Introduction to Software Packages, GalgotiaPublicaions.
2. MS–Office Compiled by SYBIX
3. MS–Office BPB Publications.
4. Introduction to Computer by P.K. Sinha
5. Windows Based Computer Courses by Gurvinder Singh &Rachpal Singh, Kalyani Publishers.

B.Sc. Computer Science (Session 2018-19)

SEMESTER- I
COMPUTER FUNDAMENTAL & PC SOFTWARE
(PRACTICAL)
Course Code: BCSM-1134

Time: 3Hrs

Practical: 30
Pass Marks: 9

Instructions to Practical Examiner
Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

Practical based on Computer Fundamental & PC
Software Windows, MS Word, Power Point

B.Sc. Computer Science (Session 2018-19)

SEMESTER–I
PHYSICS
MECHANICS
(THEORY)
Course code: BCSM-1395 (I)

Time: 3 Hours   **Marks: 30**
                                                                           Pass Marks: 11

Instructions for the Paper Setters:
Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Cartesian and spherical polar co–ordinate systems, area, volume, velocity and Acceleration inthese systems, Solid angle, Relationship of conservation laws and symmetries of space and time.

UNIT–II
Various forces in Nature (Brief introduction) centre of mass, equivalent one body problem, centralforces, equation of motion under central force, equation of orbit and turning points. Kepler Laws.Concept of Ether and Michel son–Morley experiment.

UNIT–III
Inertial frame of reference.Galilean transformation and Invariance. Non Inertial frames, Coriolisforce and its applications. Variation of acceleration due to gravity with latitude.Foucaultpendulum.

UNIT–IV
Elastic collision in Lab and C.M. system, velocities, angles and energies, cross section of elasticscattering, Rutherford scattering. Rigid Body motion; Rotational motion, principal moments and
Axes.Euler‟s equations, precession and elementary gyroscope.

Books Suggested:
1. Mechanics, Berkeley Vol.–I by C. Kittle.
2. Mechanics, H.S. Hans & S.P. Puri.

B.Sc. Computer Science (Session 2018-19)

SEMESTER–I
PHYSICS
ELECTRICITY AND MAGNETISM
(THEORY)
Course code:BCSM-1395 (II)

Time: 3 Hours
Marks: 30
Pass Marks: 11

Instructions for the Paper Setters:
Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Basic ideas of Vector Calculus Gradient, Divergence, curl and their physical significance.Laplacian in rectangular, cylindrical and spherical coordinates. Coulomb"s Law for point charges
andcontinuous distribution of charges. Electric field due to dipole, line charge and sheet ofcharge. Electric flux, Gauss"s Law and its applications. Gauss"s divergence theorem anddifferential form of Gauss"s Law.Green"s theorem.

UNIT–II
Work and potential difference.Potential difference as line integral of field. Electric potential due
to a point charge a group of point charges, dipole and quadruple moments, long uniformlycharged wire, charged disc. Stoke"s theorem and its applications in Electrostatic field, curl E=0.Electric fields as gradient of scalar potential.Calculation of E due to a point charge and dipolefrom potential.Potential due to arbitrary charge distribution and multipole moments.

UNIT–III
Poisson and Laplace"s equation and their solutions in Cartesian and spherical coordinates.Conceptof electrical images.Calculation of electric potential and field due to a point charge placed near aninfinitely conducting sheet.Current and current density, equation of continuity. Microscopic formof Ohm"s Law $(J=\sigma E)$ and conductivity, Failure of Ohm"s Law. Invariance of charge.

UNIT–IV
E in different frames of reference.Field of a point charge moving with constant velocity.Interaction between moving charges and force between parallel currents.Behavior of varioussubstances in magnetic field.Definition of M and H and their relation to free and bound currents.
Permeability and susceptibility and their interrelationship.Orbital motion of electrons andDiamagnetism.

Books Suggested:
1. Fundamentals of Electricity and Magnetism by Arthur F. Kipp.
2. Electricity and Magnetism, Berkeley Physics Course, Vol. II by E.M. Purcell.
3. Introduction to Classical Electrodynamics by David Griffith.
4. EM Waves and Radiating System by Edward C. Jordan and K.G. Balmain.
5. Fields and Waves Electromagnetic by David K. Cheng.

B.Sc. Computer Science (Session 2018-19)

SEMESTER–I
PHYSICS
PHYSICS PRACTICAL
Course code: BCSM-1395 (P)

Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

General Guidelines for Practical Examination

I. The distribution of marks is as follows: **Marks: 20**

i) One experiment **7 Marks**
ii) Brief Theory **3 Marks**
iii) Viva–Voce **5 Marks**
iv) Record (Practical file) **5 Marks**

II. There will be one sessions of 3 hours duration. The paper will have one session.

Paper will consist of 8 experiments out of which an examinee will mark 6 experiments andone of these is to be allotted by the external examiner.

III. Number of candidates in a group for practical examination should not exceed 12.

IV. In a single group no experiment isto be allotted to more than three examinees in any group.

LIST OF EXPERIMENTS

1. To study the dependence of moment of inertia on distribution of mass (by noting time periodsof oscillations using objects of various geometrical shapes but of same mass).
2. To establish relationship between torque and angular acceleration using fly wheel.
3. To find the moment of inertia of a flywheel.
4. Study of bending of beams and determination of Young‟s modulus.
5. Determination of Poisson‟s ratio for rubber.
6. To determine energy transfer, coefficient of restitution and verify laws of conservation oflinear momentum and kinetic energy in elastic collisions using one dimensional collisions ofhanging spheres.
7. To verify the laws of vibrating string by Melde‟s experiment.
8. Measure time period as a function of distance of centre of suspension (oscillation) fromcentre of mass, plot relevant graphs, determine radius of gyration and acceleration due togravity.
9. Find the value of „g‟ by Kater‟s pendulum.
10. Measure time period of oscillation of a Maxwell needle and determine modulus of rigidity of the material of a given wire.
11. To measure logarithmic decrement, coefficient of damping, relaxation time, and quality factor of a damped simple pendulum.

B.Sc. Computer Science (Session 2018-19)

SEMESTER – I
DRUG ABUSE
Course Code: AECD-1161
(Theory)

Time:3 Hrs   **Max.Marks: 50**
                                                              Theory: 40
                                                              CA: 10

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

1)**Meaning of Drug Abuse:** Concept and Overview, Historical Perspective of Drug Abuse, Drug Dependence, Drug Addiction, Physical and Psychological Dependence: Drug Tolerance and withdrawal symptoms.

UNIT-II

2) **Types of Abused Drugs and their Effects -I**
1) Stimulants: Amphetamines – Benzedrine, Dexedrine, Cocaine.
2) Depressants: Alcohol Barbiturates: Nembutal, Seconal, Phenobarbital and Rohypnol.
3) Narcotics: Heroin, Morphine, Oxycodone.

UNIT-III

3) **Types of abused drugs and their effects - II**
1) Hallucinogens: Cannabis, Marijuana, Hashish, Hash Oil, MDMA, LSD.
2) Steroids.

UNIT-IV

4) **Nature and Extent of the Problem:** Magnitude or prevalence of the menace of Drug Abuse in India and Punjab, Vulnerable groups by age, gender and economic status, Signs and Symptoms of Drug Abuse: Physical, Academic, Behavioural and Psychological Indicators.

References:

1.Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection.*Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
5. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur: Rawat Publication.
6. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
7. Sain, Bhim 1991, *Drug Addiction Alcoholism,* Smoking obscenity New Delhi: Mittal Publications.
8. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab*: A Sociological Study. Amritsar: Guru Nanak Dev University.
9. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.
10. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation,* Cambridge University Press.

SEMESTER II
PUNJABI COMPULSORY
COURSE CODE: BCSL -2421

;wKL 3 xzN/Maximum Marks: 50

Theory: 40

CA: 10

gkmeqw ns/ gkmg[;seK

:{fBN-I

    d' ozr (ejkDh Gkr)(;zgkH jofizdo f;zx fYb'A ns/ gqhsw f;zx ;or'Xhnk),r[o{ BkBe d/t :{Bhtof;Nh, nzfwqs;o.

(ਹਡਰ-ਬ ਤੂ/ ਨੰ/ਤੈ ਖਰਦਾ ਸੀਥਨ ਠੈਰਧਨੇ)8 nze

:{fBN-II

    ;z;ko dhnK gqf;X j;shnK (ihtBh BzL 10 s'A18 se)(;zgkH fgqzH s/ik   f;zx, joBkw f;zx Pkw),

    gzikph ;kfjs gqekPB, nzfwqs;o.

(ਹਡਰ/ ਨੰ/ਤਾਿਵ   ਤਥੰ)   8

nze

:{fBN-III

(T) **Ppd pDso ns/ Ppd ouBk** L gfoGkPk, w[Yb/ ;zebg.

    (n) Ppd Pq/DhnK   8

nze

:{fBN-IV

(T) **d|soh fumh gso**

    (n) **w[jkto/ ns/ nykD**   8

nze

nze tzv ns/ gohfyne bJh jdkfJsK

1H gqPB gZzso d/ uko :{fBN j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr jo :{fBN ftu d' gqPB g[ZS/ ikDr/.

2H ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo :{fBN ftu'A fJe gqPB bkIwh j?.   gzitK gqPB fe;/ th :{fBN ftu'A ehsk ik ;edk j?.

3H jo/e gqPB d/ 08 nze jB.

4H g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nr'A tX s'A tX uko

uko

    T[g gqPBK ftu eo ;edk j?.

B.Sc. Computer Science (Session 2018-19)

SEMESTER–II
w[ZYbh gzikph

(In lieu of Compulsory Punjabi)
COURSE CODE: BCSL-2031

smW: 3 GMty   Maximum Marks: 50

Theory : 40

CA: 10

gkm eqw

:{fBN-I

Ppd P/qDhnK L gSkD ns/ tos'A (BKt, gVBKt, fefonk, ftP/PD, fefonk ftP/PD, ;pzXe, :'ie ns/ ft;fwe)

8 nze

:{fBN-II

gzikph tke pDso L w[Ybh ikD gSkD
(T) ;kXkoB tke, ;z:[es tke ns/ fwPos tke (gSkD ns/ tos'A)
(n) fpnkBhnk tke, gqPBtkue tke ns/ j[ewh tke (gSkD ns/ tos'A)

08 nze

:{[fBN-III

g?oQk ouBk
;zy/g   ouBk
8 nze

:{fBN-IV

fumh gZso (xo/b{ ns/ d|soh)
nykD   ns/   w[jkto/
08 nze

nze tzv ns/ gohfyne bJh jdkfJsK

1H   gqPB gZso d/ uko :{fBN j'Dr/.;?ePB A-D sZe d/ gqPB :{fBN I-IV ftu'A g[ZS/ ikDr/. jo :{fBN ftu d' gqPB g[ZS/ ikDr/.

2H   ftfdnkoEh B/ e[b gzi gqPB eoB/ jB. jo Gkr ftu'A fJe gqPB bkIwh j?. gzitK gqPB fe;/ th Gkr ftu'A ehsk ik ;edk j?.

3H   jo/e gqPB d/ 08 nze jB.

4H   g/go ;?ZN eoB tkbk i/eo ukj/ sK gqPBK dh tzv nr'A tX s'A tX uko T[g gqPBK ftu eo ;edk j?.

SEMESTER-II
Punjab History & Culture (C. 320 to 1000 A.D)
(Special Paper in lieu of Punjabi compulsory) Course
Code: BCSL -2431

Time: 3 Hours   **Max. Marks: 50**
                                                                                                    Theory: 40
                                                                                                    CA: 10

Instructions for the Paper Setters

Eight questions of equal marks (8 marks) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

1. Punjab under Chandragupta Maurya and Ashoka.
2. The Kushans and their Contribution to the Punjab.

Unit -II

3. The Panjab under the Gupta Emperor.
4. The Punjab under the Vardhana Emperors

Unit-III

5. Political Developments 17th Century to 1000 A.D. (Survey of Political)
6. Socio-cultural History of Punjab from 7th to 1000 A.D.

Unit -IV

7. Development of languages and Literature.
8. Development of art & Architecture

Suggested Readings

1. L. Joshi (ed): *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed); *History of Punjab*, Vol.I, Patiala 1977.
3. Budha Parkash :*Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma: *Life in Northern India*, Delhi. 1966.

B.Sc. Computer Science (Session 2018-19)

SEMESTER–II
ENGLISH (COMPULSORY)
Course Code: BCSL -2212

Time: 3 Hours   **Max. Marks: 50**
    Passing Marks: 14   **Theory: 40**
                                         Continuous Assessment: 10

Instructions for the Paper-Setter and Distribution of Marks:

The question paper will consist of 4 sections & distribution of marks will be as under:

Section-A: The question will be set from Unit I of the syllabus. Fourteen sentences would be set and the students would be required to attempt any ten. Each sentence would carry one mark.

(1x10=10)

Section-B: Two questions will be set from Unit II of the syllabus. The students would be required to attempt one personal letter out of the given two. It would carry five marks. The second question will be based on grammar. The students will be required to attempt any five sentences out of eight and each sentence will carry one mark.   **(2x5=10)**

Section-C: Two questions will be set from Unit III of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Section-D: Two questions will be set from Unit IV of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Texts Prescribed:
1. *Tales of Life* (Guru Nanak Dev University, Amritsar) Stories at Sr. No. 7, 9, 10, 11, 12
2. *Prose for Young Learners* (Guru Nanak Dev University, Amritsar) Essays at Sr. No. 7, 8, 9, 10, 11
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP (Units: 49-97)

The syllabus is divided in four sections as mentioned below.

Unit I: English Grammar in Use, 4th Edition by Raymond Murphy, CUP (Units: 49-81)
Unit II: Personal letter Writing and English Grammar in Use (Units: 82-97)
Unit III: Tales of Life (Guru Nanak Dev University, Amritsar) 7, 9, 10, 11, 12
Unit IV: Prose for Young Learners (Fourth Edition) by Raymond Murphy, CUP 7, 8, 9, 10 and 11

B.Sc. Computer Science (Session 2018-19)
SEMESTER–II

MATHEMATICS
CALCULUS AND DIFFERENTIAL EQUATIONS
Course code: BCSM-2333 (I)

Time : 3 hrs.   **Max.Marks:40**
Passing Marks: 14

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit–I

Asymptotes, Tests for concavity and convexity, Points of inflexion, Multiple Points, Curvature,

Tracing of Curves (Cartesian and Parametric coordinates only).

Unit-II

Integration of hyperbolic functions.Reduction formulae.Definite integrals.Fundamental theorem of integral calculus.Quadrature, rectification.

Unit– III

Exact differential equations. First order and higher degree equations solvable for x,y,p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation.Orthogonal trajectories.

Unit-IV

Linear differential equations with constant and variable coefficients.Variation of Parameters method, reduction method, series solutions of differential equations.Power series method, Bessel and Legendre equations (only series solution).

Books Recommended:
1. D.A. Murray: Introductory Course in Differential Equations. Orient Longman (India), 1967.
2. G.F. Simmons: Differential Equations, Tata McGraw Hill, 1972.
3. E.A. Codington: An Introduction to Ordinary Differential Equations, Prentice Hall of India, 1961.
4. Gorakh Prasad: Integral Calculus, Pothishala Pvt. Ltd., Allahabad.
5. Erwin Kreyszig: Advanced Engineering Mathematics, John Wiley and Sons, 1999. 52

B.Sc. Computer Science (Session 2018-19)

SEMESTER–II
MATHEMATICS
CALCULUS
Course code: BCSM-2333 (II)

Time: 3 hrs.
Max.Marks:40
Passing Marks:14

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit–I

Limit and Continuity of functions of two variables, Partial differentiation, Change of variables, Partial derivatives and differentiability of real–valued functions of two variables, Schwartz"s and Young"s Theorem, Statements of Inverse and implicit function theorems and applications.

Unit-II

Euler"s theorem on homogeneous functions, Taylor"s theorem for functions of two variables, Jacobians, Envelopes.Evolutes, Maxima, Minima and saddle points of functions of two variables.

Unit-III

Lagrange"s undetermined multiplier method, Double and Triple Integrals, Change of variables., Applications to evaluation of areas, Volumes, Surfaces of solid of revolution, Change of order of integration in double integrals.

Unit-IV

Application to evaluation of area, volume, surface of solids of revolutions.

Books Recommended:
1. Narayan, S. and P.K. Mittal: Integral Calculus. Sultan Chand & Sons.
2. Kreyszig, E.: Advanced Engineering Mathematics.
3. Narayan S. and P.K. Mittal : Differential Calculus, Sultan Chand & Sons.

B.Sc. Computer Science (Session 2018-19)

SEMESTER- II
PROGRAMMING IN C
(THEORY)
Course Code: BCSM-2134

Time: 3Hrs   **Theory: 50**

Pass Marks: 18

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Data Representation, Introduction to Number Systems and Character Codes, Flow Charts, Problem Analysis, decision tables, pseudo codes and, algorithms.

UNIT–II
Programming Languages C:

Basics of C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors **Data Types:** Basic & Derived Data Types, User Defined Data Types, Declaring and initializingvariables.

Operators and Expressions: Types of operators (Unary, Binary, Ternary), Precedence andAssociativity
Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions
UNIT–III
Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled,Advantages/Disadvantages of loops, difference between for, while and do–while. **Arrays:** Types of Arrays, One Dimensional and Two Dimensional Arrays.
Strings: Introduction to Strings and String functions, array of strings.
UNIT-IV
Functions: User Defined & Library Function, Function (Prototype, Declaration, Definition),Methods of passing arguments, local and global functions, Recursion. **Storage Classes:** Introduction to various storage classes, scope and lifetime of a variable, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.
Structure and Union: Introduction to structure and union, pointers with structure.

Books Suggested:

(i)   Programming with C Languages C. Schaum Series.
(ii)   YashwantKanitkar – Let Us C
(iii)   C Programming by Stephen G Kochan
(iv)   Balaguruswamy: "Programming in ANSIC".

B.Sc. Computer Science (Session 2018-19)

SEMESTER- I
COMPUTER FUNDAMENTAL & PC SOFTWARE
(PRACTICAL)
Course Code: BCSM-2134

Time: 3Hrs　　　　　　　　　　　　　　　　　　　　　　**Practical: 30**

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Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

Practical based on Programming in C

B.Sc. Computer Science (Session 2018-19)

SEMESTER–II
PHYSICS
RELATIVITY AND ELECTROMAGNETISM
(THEORY)
Course code: BCSM-2395 (I)

Time: 3 Hours   **Marks: 30**
                                                    Pass Marks: 11

Instructions for the Paper Setters:
Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Postulates of special theory of relatively. Lorentz transformations, observer and viewer in relativity. Relativity of simultaneity, Length, Time, velocities. Relativistic Dopper effect. Variation of mass with velocity, mass–energy equivalence, rest mass in an inelastic collision, relativistic momentum & energy, their transformation, concepts of Murkowski space, four vector formulation.

UNIT–II
Lorentz's force, Definition of B. Biot Savart's Law and its application to long straight wire, circular current loop and solenoid. Ampere's Circuital law and its application. Divergence and curl of B. Hall effect, expression and co–efficient. Vector potential, Definition and derivation, current–density–definition, its use in calculation of charge in magnetic field at a current sheet. Transformation equation of E and B from one frame to another.

UNIT–III
Faraday's Law of EM induction, Displacement current, Mutual inductance and reciprocity theorem. Self inductance, L for solenoid, Coupling of Electrical circuits. Analysis of LCR series and parallel resonant, circuits Q–factor, Power consumed, power factor.

UNIT–IV
Maxwell's equations their derivation and characterizations, E.M. waves and wave equation in a medium having finite permeability and permittivity but with conductivity $\sigma = 0$). Poynting vector, impedance of a dielectric to EM waves. EM waves in a conducting medium and Skin depth. EM wave velocity in a conductor and anomalous dispersion. Response of a conducting medium to EM waves. Reflection and transmission of EM waves at a boundary of two dielectric media for normal and oblique incidence.

Recommended Books:
1. Introduction to Electrodynamics - D.J. Griffiths-Pearson Education Ltd., New Delhi, 1991
2. Physics of Vibrations and Waves by H.J. Pain.
3. EM Waves and Radiating Systems by Edward C. Jordan and K.G. Balmain.
4. Fields and Waves Electromagnetic by David K. Cheng.

B.Sc. Computer Science (Session 2018-19)

SEMESTER–II
PHYSICS
VIBRATION AND WAVES
(THEORY)
Course code: BCSM-2395 (II)

Time: 3 Hours   **Marks: 30**
                                                                          Pass Marks: 11

Instructions for the Paper Setters:
Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Simply harmonic motion, energy of a SHO.Compound pendulum. Torsional pendulum Electrical Oscillations Transverse Vibrations of a mass on string, composition of two Perpendicular SHM of same period and of period in ratio 1:2.

UNIT–II
Decay of free Vibrations due to damping. Differential equation of motion, types of motion, types of damping. Determination of damping co–efficient– Logarithmic decrement, relaxation time and Q–Factor.Electromagnetic damping (Electrical oscillator).

UNIT–III
Differential equation for forced mechanical and electrical oscillators.Transient and steady state behavior. Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance. Power supplied to an oscillator and its variation with frequency. Q–value and band width.Q–value as an amplification factor. Stiffness coupled oscillators, Normal co–ordinates and normal modes of vibration. Inductance coupling of electrical oscillators.

UNIT–IV
Types of waves, wave equation (transverse) and its solution characteristic impedance of a string.Impedance matching.Reflection and Transmission of waves at boundary.Reflection and transmission of energy. Reflected and transmitted energy coefficients. Standing waves on a string of fixed length.Energy of vibration string.Wave and group velocity.

Recommended Books:
1. Fundamentals of Vibrations and Waves by S.P. Puri.
2. Physics of Vibrations and Waves by H.J. Pain.

B.Sc. Computer Science (Session 2018-19)
SEMESTER–II
PHYSICS PRACTICAL
(THEORY)
Couse code: BCSM-2395 (P)

Instructions to Practical Examiner
Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

General Guidelines for Practical Examination: (4.5h/week)
I. The distribution of marks is as follows: **Marks: 20**
i) One experiment **7 Marks**
ii) Brief Theory **3 Marks**
iii) Viva–Voce **5 Marks**
iv) Record (Practical file) **5 Marks**
II. There will be one sessions of 3 hours duration. The paper will have one session.
Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
III. Number of candidates in a group for practical examination should not exceed 12.
IV. In a single group no experiment is to be allotted to more than three examinees in any group.

LIST OF EXPERIMENTS
1. To determine low resistance with Carey-Foster‟s Bridge.
2. To study the magnetic field produced by a current carrying solenoid using a search coil and calculate permeability of air.
3. To study the induced e.m.f. as a function of the velocity of the magnet.
4. Study of phase relationships using impedance triangle for LCR circuit and calculate impedance.
5. Resonance in a series and parallel LCR circuits for different R–value and calculate Q–value.
6. Capacitance by flashing and quenching of a neon lamp.
7. Measurement of capacitance, determination of permittivity of a medium air and relative permittivity by de–Sauty‟s bridge.
8. To determined L using Anderson Bridge.
9. To find the value of BH the horizontal component of earth‟s magnetic field in the lab using a deflection & vibration magnetometer.
10. To study the variation of magnetic field with distance along the axis of coil carrying current by plotting a graph.

B.Sc. Computer Science (Session 2018-19)

SEMESTER – II
DRUG ABUSE
Course Code: AECD-2161
(Theory)

Time:3 Hrs   **Max.Marks: 50**
Theory: 40
CA: 10

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

1) Consequences of Drug Abuse for:
1) Individual – Education, employment and income issues.
2) Family – Violence
3) Society – Crime.
4) Nation – Law and order problem

UNIT-II

2) Management of Drug abuse:
1) Medical Management: Medication for treatment and to reduce withdrawal effects,Drug De-addiction clinics, Relapse management.
2) Psycho-Social Management: Counselling, family and group therapy, behaviouraland cognitive therapy, Environmental Intervention.

UNIT-III

3) Prevention of Drug Abuse:
1) Role of family: Parent child relationship, Family support, Supervision,Shaping values, Active Scrutiny.
2) SchoolCounselling, Teacher as role-model. Parent-Teacher-Health ProfessionalCoordination, Random testing on students.

UNIT-IV

4) Awareness of drug abuse
1) Media:Restraint on advertisements of drugs, advertisements on bad effects ofdrugs, Publicity and media, Campaigns against drug abuse,Educational and awareness program.
2) legislation:NDPs act, statuory warnings, policing of borders, checking supply/ smuggling of drugs, strict enforcement of laws, time bound trial.

References:
1.Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice andEmpowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection.*Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
5. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur:Rawat Publication.
6. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, ClinicalEpidemiological Unit, All India Institute of Medical Sciences, 2004.
7. Sain, Bhim 1991, *Drug Addiction Alcoholism,* Smoking obscenity New Delhi: MittalPublications.
8. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab*: A Sociological Study.Amritsar: Guru Nanak Dev University.
9. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*:Delhi: Shipra.
10. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention andCessation,* Cambridge University Press.