:

THIRD SEMESTER

Punjabi – A
BCA-16-301

:

ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਦਸੰਬਰ 2019 ਦੇ ਇਮਤਿਹਾਨ ਲਈ

ਕੁੱਲ ਅੰਕ : 50
ਥਿਊਰੀ : 45
ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ: 05
ਸਮਾਂ: 3 ਘੰਟੇ

ਸਿਲੇਬਸ

1. ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਕਵੀਆਂ ਦੀਆਂ ਚੋਣਵੀਆਂ ਕਵਿਤਾਵਾਂ ਦਾ ਅਧਿਐਨ
2. ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਦਾ ਅਧਿਐਨ
3. ਚੋਣਵੇਂ ਪੰਜਾਬੀ ਲੇਖਕਾਂ ਦਾ ਸੰਖੇਪ ਜੀਵਨ ਤੇ ਰਚਨਾ/ਯੋਗਦਾਨ

ਕੋਰਸ

1. ਸੁਰ-ਸੰਵੇਦਨਾ, ਸੰਪਾ: ਡਾ.ਸਤਿੰਦਰ ਸਿੰਘ ਵਿਚੋਂ ਚੋਣਵੀਆਂ 15 ਕਵਿਤਾਵਾਂ,
   ਪ੍ਰਕਾਸ਼ਕ: ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ ਪਬਲੀਕੇਸ਼ਨ ਬਿਓਰੋ, ਚੰਡੀਗੜ੍ਹ
   (ਭਾਈ ਵੀਰ ਸਿੰਘ- ਗੁਲਾਬ ਦਾ ਫੁੱਲ ਤੋੜਨ ਵਾਲੇ ਨੂੰ, ਵਿਛੋੜਾ-ਵਸਲ, ਖੇੜਾ, ਪੂਰਨ ਸਿੰਘ- ਜਵਾਨ ਪੰਜਾਬ, ਸਮੁੰਦਰ ਕਿਨਾਰੇ ਮੈਂ ਉਡੀਕਾਂ, ਗਰਾਂ ਦਾ ਮਿਹਨਤੀ ਬਲਦ, ਧਨੀ ਰਾਮ ਚਾਤ੍ਰਿਕ- ਰਾਧਾ ਸੰਦੇਸ਼, ਏਕੇ ਦੀ ਬਰਕਤ, ਪੰਜਾਬੀ ਦਾ ਸੁਪਨਾ, ਮੋਹਨ ਸਿੰਘ- ਮਾਂ, ਦੇਸ਼ ਪਿਆਰ, ਹਵਾ ਦਾ ਜੀਵਨ ਅਤੇ ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ- ਆਖਾਂ ਵਾਰਸ ਸ਼ਾਹ ਨੂੰ, ਸੱਤ ਵਰ੍ਹੇ ਅਤੇ ਅਸ਼ੋਕਾ ਚੇਤੀ ਕਵਿਤਾਵਾਂ)
2. ਪੰਜਾਬੀ ਕਥਾ-ਕਿਤਾਬ, ਸੰਪਾ: ਗੁਰਦਿਆਲ ਸਿੰਘ ਵਿਚੋਂ ਚੋਣਵੀਆਂ 6 ਕਹਾਣੀਆਂ
   ਪ੍ਰਕਾਸ਼ਕ: ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਓਰੋ, ਚੰਡੀਗੜ੍ਹ।
   (ਏਹੁ ਨਿਦੋਸਾ ਮਾਰੀਐ, ਸਵਰਗ ਦੀ ਝਲਕ, ਮਾਮਲਾ, ਉਜਾੜ, ਬਸ਼ੀਰਾ ਅਤੇ ਰੱਬ ਤੇ ਰੁੱਤਾਂ ਕਹਾਣੀਆਂ)

ਯੂਨਿਟ ਅਤੇ ਥੀਮ

1.	ਸੁਰ-ਸੰਵੇਦਨਾ ਪੁਸਤਕ ਵਿੱਚੋਂ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ (2 ਵਿਚੋਂ 1)	5 ਅੰਕ
2.	ਕਿਸੇ ਇੱਕ ਕਵਿਤਾ ਦਾ ਸਾਰ ਜਾਂ ਕੇਂਦਰੀ ਭਾਵ (3 ਵਿਚੋਂ 1)	5 ਅੰਕ
3.	ਇਕ ਕਹਾਣੀ ਦਾ ਸਾਰ (ਪੰਜਾਬੀ ਕਥਾ-ਕਿਤਾਬ ਵਿਚੋਂ)	5 ਅੰਕ
4.	ਕਿਸੇ ਇੱਕ ਕਵੀ ਜਾਂ ਕਹਾਣੀਕਾਰ ਦਾ ਜੀਵਨ, ਰਚਨਾ ਅਤੇ ਯੋਗਦਾਨ (ਭਾਈ ਵੀਰ ਸਿੰਘ, ਪ੍ਰੋ.ਮੋਹਨ ਸਿੰਘ, ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ, ਸੁਜਾਨ ਸਿੰਘ, ਸੰਤੋਖ ਸਿੰਘ ਧੀਰ ਅਤੇ ਕੁਲਵੰਤ ਸਿੰਘ ਵਿਰਕ) (2 ਵਿਚੋਂ 1, ਇੱਕ ਕਵੀ ਅਤੇ ਇੱਕ ਕਹਾਣੀਕਾਰ ਵਿੱਚੋਂ)	8 ਅੰਕ
5.	ਲੇਖ : ਸਮਾਜਕ, ਸਭਿਆਚਾਰਕ ਅਤੇ ਆਮ ਵਾਕਫ਼ੀ ਨਾਲ ਸੰਬੰਧਤ (500 ਸ਼ਬਦਾਂ ਤੱਕ)	7 ਅੰਕ
6.	ਸ਼ਬਦ ਸ਼ੁੱਧੀ (10 ਅਸ਼ੁੱਧ ਸ਼ਬਦ-ਜੋੜਾਂ ਵਿੱਚੋਂ 7)	7 ਅੰਕ
7.	ਵਾਕ ਸ਼ੁੱਧੀ (10 ਅਸ਼ੁੱਧ ਵਾਕਾਂ ਵਿੱਚੋਂ 8)	8 ਅੰਕ

ਵਿਸ਼ੇਸ਼ ਨੋਟ : ਸਮੁੱਚੇ ਪਾਠ ਕ੍ਰਮ ਲਈ ਹਫ਼ਤੇ ਵਿਚ 6 ਪੀਰੀਅਡ

OR

HISTORY AND CULTURE OF PUNJAB – A
BCA-16-302

HISTORY AND CULTURE OF PUNJAB – I

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units.
   There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.
2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
   The paper-setter must put note (2) in the question paper.
3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
   Explanatory Note : 04 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER : HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO 1849

Max. Marks	:	50
Theory	:	45
Internal Assessment	:	05
Time	:	3 Hours

Objectives: To introduce the students to the history of the Punjab region.
Pedagogy: Lectures, library work and discussions.

UNIT I

1. Harappan Civilization: extent and town planning and socio-economic life.
2. Life in Vedic Age: socio-economic and religious.
3. Growth of Jainism and Buddhism in Punjab on the region.

UNIT II

4. Society and Culture under Maurayas
5. Society and Culture under Gupta
6. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III

7. Evolution of Sikhism: teaching of Guru Nanak; Institutional Development -Manji, Masand, Sangat and pangat.
8. Transformation of Sikhism: martyrdom of Guru Arjan; martyrdom of Guru Tegh Bahadur; impact.
9. Institution of Khalsa: new baptism; significance

UNIT IV

10. Changes in Society in 18th century: social unrest; emergence of misls and institutions-rakhi, gurmata, dal khalsa.
11. Society and Culture of the people under Maharaja Ranjit Singh
12. MAP (of undivided physical geographical map of Punjab): Major Historical Places: Harappa, Mohenjodaro, Sanghol, Ropar, Lahore, Amritsar, Kiratpur, Anandpur Sahib, Tarn Taran, Machhiwara, Goindwal, Khadur Sahib.

Suggested Readings:

1. Joshi, L.M (ed.) : History and Culture of the Punjab, Part-I, Publication Bureau, Punjabi University, Patiala, 1989 (3rd edn.)
2. Joshi, L.M and Singh, Fauja (ed.) : History and Culture of the Punjab, Vol. I, Punjabi University, Patiala, 1977
3. Prakash, Buddha : Glimpses of Ancient Punjab, P.U., Patiala, 1983
4. Thapar, Romila : A History of India, Vol. I, Penguin Books, 1966
5. Basham, A.L : The Wonder That was India, Rupa Books, Calcutta (18th rep.),1992
6. Sharma, B.N : Life in Northern India, Munshi Ram Manohar Lal, Delhi,1966
7. Singh,Kirpal : History and Culture of the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).
8. Singh, Fauja(ed.) : History of the Punjab, Vol.III, Punjabi University, Patiala, 1972
9. Grewal, J.S. : The Sikhs of the Punjab, the New Cambridge History of India, Orient Longman, Hyderabad,1990.
10. Singh, Khuwant : A History of the Sikhs, vol I: 1469-1839, Oxford University Press Delhi, 1991.
11. Chopra, P.N.,Puri, B.N.and Das, M.N. :A Social, Cultural and Economic History of India, Vol. II, Macmillan, Delhi, 1974.
12. Hussain ,Yusuf : Glimpse of Medieval Indian Culture, Asia Publishing House, Bombay, 1973(rep.).

Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:

A. That the students who have not studied Punjabi upto class 10th.
B. Ward of / and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
C. Foreigners

Information System Design and Implementation

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BCA-16-303

L	T	P	Cr	External Marks: 65
6	-	-	3	Internal Marks: 10

Time Duration: 3 Hrs. Number of Lectures : 60

Objective: To teach the students about the various aspects of Information Systems to be developed their analysis and design. The motive is to aware the learners about pre requisite of software development and associated paradigms. After completing this course students will be able to be analyse and design information systems.

Note :

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

Systems Concepts and Information Systems Environment: Definition and characteristics of a system. Elements of a system Environment: Boundaries and interface. Types of systems: Physical or Abstract Systems, Open and Closed System, Man - made information systems.
The System Development Life Cycle: Introduction to various phases-Recognition of Need, Feasibility Study, Analysis, Design, Implementation, Post– Implementation and Maintenance.
The Role of System Analyst: Skills of a System Analyst, various roles of the Analyst.

UNIT - II

System Planning and the Initial Investigation: Bases for planning in system analysis, Initial investigation, determining the users information requirements, Problem definition and Project Initiation, Background Analysis, Fact Finding, Fact Analysis, Determination of Feasibility.
Information Gathering: Introduction, Information Gathering tools: Review of Literature, Procedures and forms. On -site observation. Interviews and questionnaires.
Tools of Structured Analysis: Various tools of structured analysis: Data flow diagram (DFD), Data Dictionary, Decision tree and structured English, Decision table, Pros and cons of each tools.

UNIT - III

Feasibility Study: System Performance-statement of Constraints, Identification of Specific System Objectives, description of Outputs. Feasibility Study – Feasibility considerations, Steps in feasibility analysis. Feasibility Report.
System Design: The Process of Design-Logical and Physical Design, Design methodologies: Structured design, Functional Decomposition

System Testing and Quality Assurance: Testing, System testing, Quality assurance and its goals in its system life cycle, Levels of quality assurance, Trends in testing.

UNIT – IV

Implementation and Software Maintenance: Introduction, Conversion- Activity network for Conversion, File Conversion, User Training: Elements of user Training Post implementation review. Software Maintenance - Primary activities of a Maintenance Procedure, Reducing Maintenance Costs.

Hardware and Software Selection: Types of Software, Procedure for Hardware/Software selection: Major phases in selection, Evaluation and Validation, Vendor Selection, Post – Installation Review. Software selection- Criteria for Software Selection, the evaluation process.

Suggested Readings:

1. E.M. Awad: Systems Analysis and Design, Galgotia Publications(P)Ltd.

Further Reading :

2. Hardgrave Bill C., Siau Keng, Chiang Roger H.L., Systems Analysis and Design: Techniques, Methodologies, Approaches and Architectures 1st Edition, M.E. Sharpe Publications.

Computer Oriented Numerical Methods
: **BCA-16-304**

L	T	P	Cr	External Marks: 65
6	1	-	3	Internal Marks: 10

Time Duration: 3 Hrs. Number of Lectures : 60

Objective: To teach the students the essential techniques of Numerical Methods. After completing this course students will be able to solve various Scientific and Engineering fields' problems.

Note :

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.
v. **The student can use only Basic (Non-programmable) type of Calculator.**
vi. **Log tables are allowed. Students may be provided the same for computation.**

UNIT - I

Introduction to differentiation, integration and matrix algebra.

(No. of Lectures – 05)

Data Representation and Computer Arithmetic: Introduction, Concept of Exact and Approximate Numbers, Concept of Significant digits, Representation of Numbers in Memory, Storage of Integer Numbers: Signed Representation, 1's Complement Representation, 2's Complement Representation, Floating Point Numbers and their storage, Floating Point Arithmetic, Normalization and their consequences, Errors, Measures of Accuracy: Absolute Error, Relative Error and Percentage Error, Error types: Data Errors, Truncation Errors, Round-Off Errors, Computational Errors, Rules, Relationship between Relative Error and Significant digits and Error Propagation: Error Propagation in Addition Operation, Subtraction Operation, Multiplication Operation and Division Operation.

(No. of Lectures – 10)

UNIT - II

Solution of Non-Linear Equations: Introduction, Types of Non-Linear Equations: Polynomial Equations, Transcendental Equations, Methods of Finding Solutions of Non-Linear equations: Direct Method, Iterative Method.

Iterative Methods: Bisection Method, False-Position Method, Secant Method, Newton - Raphson Methods, Zeros of a polynomial using Birge – Vieta Method. Convergence of Iterative Methods, Comparison between Iterative Methods.

(No. of Lectures – 08)

Simultaneous Linear Equations: Solution of Simultaneous Linear Equations using Direct and Iterative Methods: Direct Methods: Gauss – Elimination Method, Gauss-Jordan Method, Concept of Pivoting, Iterative Method: Gauss-Seidal Method.

(No. of Lectures – 07)

UNIT - III

Interpolation: Introduction, Lagrange Interpolation, Inverse Interpolation, Finite Differences: Forward Differences, Backward Differences, Divided Differences, Difference Tables: Forward Difference Table, Backward Difference Table, Divided Difference Table, Observations regarding Difference Tables, Newton's Method of Interpolation: Newton' s Forward Difference Interpolation Formula, Newton' s Backward Difference Interpolation Formula, Newton' s Divided Difference Interpolation Formula.

(No. of Lectures – 10)

Numerical Integration: Introduction, Newton-Cotes Integration Formulae: Trapezoidal Rule, Simpson's 1/3rd Rule, Simpson's 3/8th Rule.

(No. of Lectures – 05)

UNIT - IV

Approximation: Approximation of functions: Taylor Series Representation, Chebyshev Polynomials.

(No. of Lectures – 07)

Solution of Ordinary Differential Equations: Introduction**,** Euler's Method, Runga–Kutta Methods: 2nd order & 4th order, Predictor Corrector Methods: Modified Euler's Method.

(No. of Lectures – 08)

Suggested Readings:

Essential :

1. Salaria,R.S. : Computer Oriented Numerical Methods,5th Edition, Khanna Book Publishing Co. (P.) Ltd., New Delhi

Further Reading :

2. Rajaraman,V.,2004 : Computer Programming in C, Prentice Hall of India.
3. S.S. Shastry : Introductory Methods of Numerical Analysis
4. H.C. Saxena : Finite differences and Numerical Analysis

Data Structures
: **BCA-16-305**

L	T	P	Cr	External Marks: 65
6	-	-	3	Internal Marks: 10

Time Duration: 3 Hrs. Number of Lectures : 60

Objective: To teach the students various data structures and the basic operations performed using them. At the end of course the student will have complete knowledge of data structures, thus will be able to use them for solving real world problems.

Note :

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

Basic Concepts: Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures.
Arrays: Introduction, Types of Array, Memory representation, Applications and operations.
Stacks: Introduction, memory representation, Applications and operations

UNIT - II

Linked List: Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list, memory representation, Applications, polynomial manipulation.
Queue: Introduction, Types, Memory Representation and Applications.

UNIT - III

Trees – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Searching, Insertion and deletion in Binary trees, Binary Search tree.
Graphs: Introduction, Memory Representation, Graph Traversal (DFS and BFS)

UNIT - IV

Searching: Binary and Linear Search;
Sorting: Bubble sort, Insertion sort, Selection sort, Merge Sort, Quick sort.
Comparison of various Searching and Sorting algorithms.

Suggested Readings :

Essential :

1. Lipschuitz L. Seymour, 2001 : Data Structure, Schaum Outline Series, TMH, New Delhi.

Further Reading :

2. Tannenbaum, Aaro M., 1990 : Data Structure Using C, Pearson.
3. Salaria, R. S. : Data Structures & Algorithm Using C, Khanna Book Publishing Co. (P.) Ltd., New Delhi.
4. Salaria, R. S., Test Your Skills in Data Structures, Khanna Book Publishing Co. (P.) Ltd., New Delhi.
5. Sofat Sanjeev, Data Structure with C and C++, Khanna Book Publishing Co.
6. Patel, R.B., Expert Data Structure in C, Khanna Book Publishing Co.

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FOURTH SEMESTER