

(i) Printed Pages: 2 Roll No.

(ii) Questions : 9 Sub. Code :

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Bachelor of Commerce 1st Semester

(2122)

HISTORY & CULTURE OF PUNJAB

Paper—History & Culture of Punjab From the E.T. to 1849

(BCM-101-B) (Common With BBA 1st/ BCA 3rd Sem.)

Time Allowed : Three Hours] [Maximum Marks : 45

Note :— (i) Attempt *five* questions in all.

(ii) Question No. 1 is compulsory.

(iii) Attempt **one** question from each Unit.

(iv) An outline map of Punjab is attached herewith.

1. Answer any **five** questions of the following in about **25-30** words each :

(i) Write two names of persons connected with Harappan Civilization.

(ii) How many Hymns, Suktas and Mandalas are there in the Rig Veda ?

(iii) Name the first and last Tirthankara of Jainism.

(iv) Name the important cities of the Mauryan Age.

(v) Who was Harisena ?

(vi) Name four reformers of the Bhakti Movement.

0802/PR-19613(Outline map of Punjab) 1

[Turn over

- (vii) Write the names of sons of Guru Nanak Dev ji.
(viii) Name the parents of Guru Arjan Dev ji.
(ix) Which are the five Kakas of Sikhism ?
(x) Give the names of two famous Finance Ministers of Maharaja Ranjit Singh. 1×5=5

UNIT—I

2. Brief explain about the town planning of Harappan Civilization. 10
3. Explain the socio-economic life of the Early Vedic Age. 10

UNIT—II

4. Discuss the social, religious and economic condition of Punjab during the Mauryan Age. 10
5. What do you know about the Bhakti Movement. 10

UNIT—III

6. Explain the life and teaching of Guru Nanak Dev ji. 10
7. Describe the circumstances that led to the creation of the Khalsa and its significances. 10

UNIT—IV

8. Briefly narrate the history of Misls. 10
9. On the outline map of Punjab, show the following places and write explanatory notes on any two :

Ropar, Lahore, Kiratpur, Khadur Sahib, Harappa, Taran Taran.

6+4=10

(i) Printed Pages : 3

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Bachelor of Computer Applications 3rd Sem.

(2122)

PUNJABI (Compulsory)

Paper : BCA-16-301

Time Allowed : Three Hours]

[Maximum Marks : 45

ਨੋਟ :- (1) ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜ਼ਰੂਰੀ ਹਨ।

(2) ਲਿਖਾਈ ਸਾਫ਼ ਤੇ ਸਪਸ਼ਟ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।

1. ਹੇਠ ਲਿਖੇ ਕਾਵਿ-ਟੋਟਿਆਂ ਵਿੱਚੋਂ ਕਿਸੇ ਇੱਕ ਦੀ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ ਕਰੋ :

ਇੱਕੋ ਦੇਸ਼ ਤੇ ਇੱਕੋ ਉਦੇਸ਼ ਸਾਡਾ,
ਇੱਕੋ ਵੇਸ ਇੱਕੋ ਰੂਪ ਰੰਗ ਸਾਡਾ,
ਇੱਕੋ ਫਲਸਫ਼ਾ, ਇੱਕ ਤਹਿਜ਼ੀਬ ਸਾਡੀ,
ਮੰਜੀ ਵਾਂਗ ਉਣਿਆਂ ਅੰਗ ਅੰਗ ਸਾਡਾ,
ਧੀਆਂ ਬੇਟੀਆਂ ਦੇ ਸਾਕ ਸੈਣ ਸਾਂਝੇ,
ਮਿਲਿਆਂ ਬਾਂਝ ਨਾ ਲੰਘਦਾ ਡੰਗ ਸਾਡਾ।

ਜਾਂ

ਵੇ ਦਰਦਮੰਦਾਂ ਦਿਆ ਦਰਦੀਆ! ਉਠ ਤਕ ਆਪਣਾ ਪੰਜਾਬ।
ਅਜ ਬੇਲੇ ਲਾਸ਼ਾਂ ਵਿਛੀਆਂ ਤੇ ਲਹੂ ਦੀ ਭਰੀ ਚਨਾਬ,
ਕਿਸੇ ਨੇ ਪੰਜਾਂ ਪਾਣੀਆਂ ਵਿਚ ਦਿੱਤੀ ਜ਼ਹਿਰ ਰਲਾ,
ਤੇ ਉਨ੍ਹਾਂ ਪਾਣੀਆਂ ਧਰਤ ਨੂੰ ਦਿੱਤਾ ਪਾਣੀ ਲਾ,
ਇਸ ਜ਼ਰਖੇਜ਼ ਜ਼ਮੀਨ ਦੇ ਲੂੰ ਲੂੰ ਫੁਟਿਆ ਜ਼ਹਿਰ,
ਗਿਠ ਗਿਠ ਚੜ੍ਹੀਆਂ ਲਾਲੀਆਂ ਫੁਟ ਫੁਟ ਚੜ੍ਹਿਆ ਕਹਿਰ।

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2. ਹੇਠ ਲਿਖੀਆਂ ਕਵਿਤਾਵਾਂ ਵਿੱਚੋਂ ਕਿਸੇ ਇੱਕ ਦਾ ਸਾਰ ਜਾਂ ਕੇਂਦਰੀ ਭਾਵ ਲਿਖੋ :
 (ੳ) ਜਵਾਨ ਪੰਜਾਬ
 (ਅ) ਵਿਛੋੜਾ ਵਸਲ
 (ੲ) ਦੇਸ਼ ਪਿਆਰ। 5
3. ਹੇਠ ਲਿਖੀਆਂ ਵਿੱਚੋਂ ਕਿਸੇ ਇੱਕ ਦਾ ਸਾਰ ਲਿਖੋ :
 (ੳ) ਸਵਰਗ ਦੀ ਝਲਕ
 (ਅ) ਰੱਬ ਤੇ ਰੁੱਤਾਂ। 5
4. ਕਿਸੇ ਇੱਕ ਕਵੀ ਜਾਂ ਕਹਾਣੀਕਾਰ ਦੇ ਜੀਵਨ, ਰਚਨਾ ਤੇ ਸਾਹਿਤ ਨੂੰ ਯੋਗਦਾਨ ਬਾਰੇ ਲਿਖੋ :
 (ੳ) ਪ੍ਰੋ. ਮੋਹਨ ਸਿੰਘ
 (ਅ) ਕੁਲਵੰਤ ਸਿੰਘ ਵਿਰਕ। 8
5. ਕਿਸੇ ਇੱਕ ਵਿਸ਼ੇ ਉੱਤੇ 500 ਸ਼ਬਦਾਂ ਤੱਕ ਦਾ ਲੇਖ ਲਿਖੋ :
 (ੳ) ਵਿਦਿਆਰਥੀ ਜੀਵਨ ਤੇ ਯੁਵਕ ਮੇਲੇ
 (ਅ) ਨੌਜਵਾਨਾਂ ਦੀ ਵਿਦੇਸ਼ਾਂ ਵੱਲ ਦੌੜ
 (ੲ) ਇੰਟਰਨੈਟ
 (ਸ) ਵਿੱਦਿਆ ਦਾ ਵਪਾਰੀਕਰਨ। 7
6. ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਵਿੱਚੋਂ ਕੋਈ ਸੱਤ ਸ਼ਬਦ ਸ਼ੁੱਧ ਕਰਕੇ ਲਿਖੋ :
 ਏਨਕ, ਦੁਸੈਹਰਾ, ਔਹਦਾ, ਗੈਹਿਨਾ, ਜੈਦਾਤ, ਹੋਯਾ, ਕਉਣ, ਪਰਿਸੀਪਲ, ਭੜਾਈ, ਵੇਹੜਾ। 7

7. ਹੇਠ ਲਿਖੇ ਵਾਕਾਂ ਵਿੱਚੋਂ ਕੋਈ ਅੱਠ ਵਾਕ ਸੁੱਧ ਕਰਕੇ ਲਿਖੋ :

- (ੳ) ਖਿਡਾਰੀਆਂ ਨੇ ਫੁੱਟਬਾਲ ਖੇਡੇ।
- (ਅ) ਉਸ ਦਾ ਕਾਪੀ, ਕਿਤਾਬ ਤੇ ਪੈੱਨ ਗੁਆਚ ਗਏ।
- (ੲ) ਬਹੁਤ ਤੇਜ਼ ਉਹ ਤੁਰ ਰਿਹਾ ਹੈ।
- (ਸ) ਮੁੰਡਾ ਨੇ ਸਕੂਟਰ ਚਲਾਇਆ।
- (ਹ) ਤੁਹਾਡੇ ਪਾਸ ਕਿੰਨੇ ਰੁਪਏ ਹਨ।
- (ਕ) ਰੱਖੋ ਮੇਜ਼ ਉੱਤੇ ਸਾਰੀਆਂ ਚੀਜ਼ਾਂ ਤੁਸੀਂ
- (ਖ) ਤੂੰ ਮੈਂ ਤੇ ਉਹ ਸ਼ਿਮਲੇ ਜਾਏਗਾ।
- (ਗ) ਹੁੰਦਾ ਹੈ ਮਿਹਨਤ ਦਾ ਫਲ ਮਿੱਠਾ।
- (ਘ) ਸਕੂਲ ਤੋਂ ਗਾਂਧੀ ਜੀ ਘਰ ਜਾਂਦੇ ਸਨ ਸਿੱਧਾ।
- (ਙ) ਕਾਸ਼ ਮੈਂ ਅਮੀਰ ਹੁੰਦਾ।

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(i) Printed Pages : 2

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(ii) Questions : 9

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Bachelor of Computer Applications 3rd Semester

(2122)

**INFORMATION SYSTEM DESIGN AND
IMPLEMENTATION**

Paper : BCA-16-303

Time Allowed : Three Hours]

[Maximum Marks : 65

Note :— The students are required to attempt ONE question each from Section (A to D) and the compulsory question.

SECTION—A

1. Describe System and its classification. Discuss System development Life Cycle along with block diagram in detail. 13
2. (a) Who is System analyst ? Define the roles of System analyst. 7
(b) Explain the process of system implementation and maintenance. 6

SECTION—B

3. (a) What do you mean by Fact Finding ? Discuss the concept of Fact Analysis. 7
(b) Discuss Interviews and Questionnaires as information gathering tools. 6
4. What is information gathering ? Explain its various tools in detail. 13

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SECTION—C

5. Briefly explain the steps in feasibility analysis. Discuss technical and economic feasibility study. 13
6. (a) What are various approaches to design a good system ? Explain functional decomposition as design methodology. 7
- (b) What is software testing ? Explain different types of testing. 6

SECTION—D

7. Discuss various phases in hardware and software selection. What are the criteria for software selection ? 13
8. (a) What methods are used to review systems after implementation ? 7
- (b) Explain activities of software maintenance procedure. 6

(Compulsory Question)

9. (a) What is Evaluation and validation ? 2
- (b) What do you mean by audit trail ? 2
- (c) Feasibility Report. 2
- (d) Explain DFD. 2
- (e) On-site Observation. 2
- (f) Differentiate Physical and Abstract Systems. 3

(i) Printed Pages: 4 Roll No.

(ii) Questions : 9 Sub. Code :

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Bachelor of Computer Applications 3rd Semester

(2122)

COMPUTER ORIENTED NUMERICAL METHODS

Paper : BCA-16-304

Time Allowed : Three Hours] [Maximum Marks : 65

Note :— Attempt FIVE questions in all, including Q.No. 9 in Section-E, which is compulsory and taking ONE each from Sections-A, B, C & D.

SECTION—A

1. What is normalized floating point number ? Explain various arithmetic operations with Normalized Floating Point Numbers, by taking examples. 13
2. (a) How a floating point number is stored in the memory of a computer ? Explain by taking suitable example.
(b) Differentiate between 1's complement representation and 2's complement representation of numbers by taking examples. 7,6

SECTION—B

3. (a) Solve $x^3 - 5x + 3 = 0$ by Regula-Falsi Method.
(b) Use the bisection method to approximate the value of $\sqrt{3}$ given that it lies in the interval $[1, 2]$. 7,6
4. (a) Solve the following system of linear simultaneous equations by Gauss-Elimination method :
$$2x + 2y + z = 12$$
$$3x + 2y + 2z = 8$$
$$5x + 10y - 8z = 10$$

(b) Solve the following system of linear simultaneous equations by Gauss-Jordan method :
$$2x + y + 6z = 9$$
$$8x + 3y + 2z = 13$$
$$x + 5y + z = 7$$
 7,6

SECTION—C

5. (a) Use Lagrange and the divided difference formula to calculate $F(3)$ from the following table :

X :	0	1	2	4	5	6
F(x) :	1	14	15	5	6	19

- (b) Given :

x:	1	2	3	4	5	6	7	8
f(x) :	1	8	27	64	125	216	343	512

Find $f(7.5)$ using Newton's Backward difference formula. 6,7

6. (a) Evaluate the value of the integral $\int_0^1 \frac{x dx}{1+x^2}$ using Simpson's rule with three and six points.
- (b) Find the minimum number of intervals required to evaluate the following integral with an accuracy of 10^{-5} using Simpson's 1/3 Rule. $\int_0^1 \frac{1}{1+x} dx$ 6,7

SECTION—D

7. Use the Runge-Kutta 4th order method with step size 0.5 to solve the initial value problem :

$$y' = \frac{3x}{y} - xy, \quad y(0) = 2 \text{ over the interval } [0, 1]. \quad 13$$

8. What do you mean by approximation of a function by a Taylor's series ? Find the Taylor polynomial of degree 2,

$$T_2(x) \text{ for } f(x) = \frac{1}{(2+x)} \text{ centered at } x_0 = 0. \quad 13$$

SECTION—E (Compulsory Question)

9. (a) Give definition of numerical analysis.
- (b) Find the relative error, absolute error and percentage error, if $\frac{2}{3}$ is approximated to 0.6667.

- (c) What is the order of convergence of Secant Method ?
- (d) What is meant by numerical integration ?
- (e) What is the relation between Divided Differences and Forward Differences in interpolation ?
- (f) What is pivoting in the solution of simultaneous linear equations ? Explain with an example. $5 \times 2, 3$

(i) Printed Pages : 2

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(ii) Questions : 9

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Bachelor of Computer Applications 3rd Semester
(2122)

DATA STRUCTURES

Paper—BCA-16-305

Time Allowed : Three Hours]

[Maximum Marks : 65

- Note :—** (1) Attempt ONE question from each unit.
(2) Question No. 9 is compulsory question.
(3) All questions carry equal marks unless specified.

UNIT—A

- (a) How multidimensional arrays are represented in memory? 6
(b) Write and analyze recursive algorithm to find the factorial of a number. 7
- Explain Quick sort algorithm as an application of stack. 13

UNIT—B

- Write an algorithm to find the number NUM of non-zero elements in a linked list. 13
- (a) What is priority queue ? Explain one-way list representation of priority queue. 7
(b) Write various applications of queue in detail. 6

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UNIT—C

5. (a) How trees are represented in memory ? 5
(b) Explain in-order and post-order traversal technique in detail. 8
6. (a) Write an algorithm to insert and search from a binary search tree. 7
(b) Explain various traversal techniques for Graphs. 6

UNIT—D

7. (a) What is Binary Search ? How is it different from Linear Search ? 6
(b) How does Selection sort work ? Write its algorithm with a suitable example. 7
8. (a) What is Insertion sort ? Write its algorithm and explain with suitable example. 7
(b) Write an algorithm for Merge Sort. 6

(Compulsory Question)

9. (i) Discuss various applications of Data Structure. 2
(ii) Differentiate between linear and non-linear data structures. 2
(iii) What are the advantages of linked list over arrays ? 2
(iv) Define garbage collection. 1
(v) Differentiate between Binary tree and Binary Search tree. 2
(vi) Calculate the complexity of Binary search algorithm. 2
(vii) Which sorting technique is best in terms of complexity ? Justify. 2