

B.C.A II 2018 22

Roll No.

Total Pages : 4

1864/M

K-2/2058

**COMPUTER ORIENTED NUMERICAL AND
STATISTICAL METHODS**

Paper-BCA-224

Semester-IV

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : The candidates are required to attempt **two** questions each from Sections A and B carrying 15 marks each and the entire Section C consisting of 5 short answer type questions carrying 3 marks each.

SECTION—A

1. What do you understand by Floating point representation of Numbers ? Discuss in detail the various arithmetic operations with normalized floating point numbers. 15

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[P. T. O.]

2. Discuss in detail the Secant method and hence find the real root for the equation given below correct upto three places of decimal by this method :

$$3x = \cos x + 1. \quad 15$$

3. (a) Solve the equations :

$$x + y + z = 10$$

$$2x + y + 2z = 17$$

$$3x + 2y + z = 17$$

by Gauss elimination method.

6

- (b) Apply Gauss Seidel method to solve the system :

$$2x - y + z = 5$$

$$x + 3y - 2z = 7$$

$$x + 2y + 3z = 10.$$

9

4. Find the order of convergence of Newton-Raphsen method and show that this method converges faster as compare to Bisection, Regula-Flasi and Secant methods.

15

SECTION—B

5. (a) By means of Lagrange's formula, prove that :
 $y_3 = 0.05(y_0 + y_1) - 0.3(y_1 + y_5) + 0.75(y_2 + y_4).$ 7

- (b) By means of Newton's divided difference formula, find the values of $f_{(8)}$ and $f_{(15)}$ from the following table :

| | | | | | | |
|------|----|-----|-----|-----|------|------|
| x | 4 | 5 | 7 | 10 | 11 | 13 |
| f(x) | 48 | 100 | 294 | 900 | 1210 | 2028 |

6. Describe the method of fitting the exponential regression of type $y = ae^{bx}$ and hence fit this regression to the following data :

15

| | | | | | | |
|---|-----|-----|------|------|-----|-----|
| X | 1 | 2 | 3 | 4 | 5 | 6 |
| Y | 1.6 | 4.5 | 13.8 | 40.2 | 125 | 300 |

7. The marks secured by recruits in the selection test (X) and in the proficiency test Y are given below :

15

| | | | | | | | | | |
|--------|----|----|----|----|----|----|----|----|----|
| S. No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| X: | 10 | 15 | 12 | 17 | 13 | 16 | 24 | 14 | 22 |
| Y: | 30 | 42 | 45 | 46 | 33 | 34 | 40 | 35 | 39 |

Calculate Karl Pearson's and Rank correlation coefficients and tell why are two coefficients different.

15

8. Obtain the equations of the lines of regression for the data give below :

| | | | | | | | | |
|-----|----|----|----|----|----|----|----|----|
| X : | 65 | 66 | 67 | 67 | 68 | 69 | 70 | 72 |
| Y : | 67 | 68 | 65 | 68 | 72 | 72 | 69 | 71 |

Where X represents heights of fathers and Y represents heights of sons. Also obtain the estimate of X for Y = 70. 15

SECTION—C

9. Answer the following questions in brief: $5 \times 3 = 15$

- (i) Multiply $0.1111E51$ and $0.4444E50$ and express 17.375 in binary form.
- (ii) What do you understand by ill-conditioned equations ? Give examples.
- (iii) Write short note on classification of data.
- (iv) By explaining the concept of dispersion, state some measures of calculating it.
- (v) Write down important properties of Regression coefficients.

PC 1866-M**K-2/2058****ENVIRONMENTAL AND ROAD SAFETY AWARENESS—228****Semester-IV**

Time Allowed : Three Hours]

[Maximum Marks : 70

Note :— The candidates are required to attempt *two* questions each from Sections A and B carrying 11 marks each and the entire Section C consisting of 13 short answer type questions carrying 2 marks each.

SECTION—A

1. What is Biosphere ? Explain main sub-divisions of Biosphere. 11
2. What do you know about the renewable and non renewable energy resources ? 11
3. What are food chains and food webs ? Give examples and discuss their significance. 11
4. Describe various sources of water pollution, their consequences and methods of control of water pollution. 11

SECTION—B

5. Discuss various issues and measures for woman and child welfare at international and national levels. 11
6. What is ozone layer depletion ? Discuss the significance of ozone layer in stratosphere and the agents responsible for its depletion. 11

7. Write a detailed note on Stubble Burning. 11
8. Discuss the role and significance of traffic rules in India. 11

SECTION—C

9. Write short notes on the following :

- (i) Deforestation
- (ii) Green house effect
- (iii) Floods
- (iv) Acid rain
- (v) Noise pollution
- (vi) Solid waste management
- (vii) Rain water harvesting
- (viii) Lithosphere
- (ix) Ecological pyramids
- (x) National Parks
- (xi) Global warming
- (xii) AIDS
- (xiii) DAMS.

13×2=26

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ENGLISH COMMUNICATION SKILLS-II

Paper-221

Semester-IV

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : Read the instructions carefully.

SECTION-A

1. (a) Answer any **one** of the following in about 250-300 words :

Write a detailed note on the ending of *The Old Man and the Sea*.

Or

Discuss the character of Santiago in light of his struggle with the fish.

10

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[P. T. O.]

(b) Answer any **five** of the following in about
40–45 words : 2×5=10

- (i) Write a brief note on the role of the sea in the Novel.
- (ii) Who is DiMaggio ? What is he symbolic of ?
- (iii) Discuss Marlin as a symbol of an accomplished opponent.
- (iv) What is the relationship between Santiago and Manolin ?
- (v) In what way has Santiago been likened to Christ ?
- (vi) What is Hemmingway's idea about 'death' as suggested in the novel ?
- (vii) What are the lions on the beach symbolic of ?
- (viii) How does the opening of the novel set the scene for the following action ?

SECTION—B

2. (a) Give small words for any **five** of the following : 1×5=5
- Animosity, gigantic, insomnia, hilarious, amiable, opulent, fortitude, erroneous.
- (b) Prepare advertisements on any **two** of the following : 5,5
- (i) Prepare an advertisement about a multi-cuisine restaurant coming up in your city.
 - (ii) Prepare an advertisement about the sale of your home furniture.
 - (iii) Prepare an advertisement by a leading bank offering special facilities and offers to Women and Senior Citizens.
- (c) Write a report on any **one** of the following : 10
- (i) Prepare a report on the Annual Sales of your Electronic Store. Also detail the factors responsible for the rise/fall in sales.

- (x) You must work for success.
- (xi) Didn't anybody ever teach you how to behave ?
- (xii) Figs are said to be better for us than bananas.

Note : Change the tense of the following according to the one mentioned in brackets :

- (xiii) Have you ever seen a Hippopotamus ?
(Change into Future perfect)
- (xiv) They do not speak to each other.
(Change into Present continuous)
- (xv) He has been living here since 1934.
(Change into Past perfect continuous)
- (xvi) That pudding smells nice.
(Change into Past perfect)
- (xvii) Mr. Brown knew Greek.
(Change into Present perfect)

(xviii) I was watching a beautiful tie in the shop window.

(Change into Present continuous)

(b) Change the degree of any 5 of the following according to the one mentioned in brackets :
5

(i) He is cleverer than I thought he was.

(Change into Positive using the antonym of the underlined word)

(ii) This hill is less low than I thought it was.

(Reference the sentence using the antonym of the underlined word)

(iii) No other boy in the class is as naughty as he is.

(Change into Superlative)

(iv) She is the kindest of all the nurses of the hospital.

(Change into Comparative)

(v) The river was deeper than he expected.

(Change into Positive)

(vi) John is much less intelligent than his sister (dull).

(Reference using the word in brackets)

(vii) This is the most beautiful country I've ever visited. (Change into Positive)

(viii) No other flower has colours as bright as this one.

(Change into Superlative)

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COMPUTER NETWORKS

Paper-BCA-222

Semester-IV

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : The candidates are required to attempt **two** questions each from Sections A and B carrying 15 marks each and the entire Section C consisting of 5 short answer type questions carrying 3 marks each.

SECTION—A

1. (a) List and explain in brief ant two the important uses of Computer Networks. 7½

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[P. T. O.]

- (b) Distinguish between a LAN and a WAN on the basis of scale and design issues of each. 7½
2. Enumerate the functions of Application, Transport and Network layers in OSI reference model and compare them with TCP/IP model. 15
3. Enumerate and explain the design issues related to the data link layer. How is framing done using bit stuffing and physical layer coding violations ? 15
4. Explain in brief the elementary Data link layer protocols for Flow control. 15

SECTION—B

5. Distinguish between Static and Dynamic routing. Describe one dynamic routing algorithm of your choice. 15

6. What is congestion control ? Distinguish between Leaky bucket and Token bucket algorithms for congestion control. Which in your opinion is better and why ? 15
7. Describe the following in the context of application layer : 15
- (a) WWW
- (b) E-mail.
8. How is Network Security achieved using the following : 15
- (a) Public Key algorithms.
- (b) Digital signatures.

SECTION—C

9. Answer any **five** of the following questions in brief : 5×3=15
- (i) What do you mean by Protocols, Interfaces and Services in the Network architecture ?

- (ii) What are the functions of the presentation layer of OSI reference model ?
- (iii) Describe one error detection technique used in Networks.
- (iv) List and briefly explain the design issues of the Network layer.
- (v) How is name space organized in DNS ?
- (vi) What is a Transposition Cipher ?

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**RELATIONAL DATABASE MANAGEMENT
SYSTEMS WITH ORACLE**

Paper-BCA-225

Semester-IV

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : The candidates are required to attempt **two** questions each from Sections A and B carrying 15 marks each and the entire Section C consisting of 6 short answer type questions carrying 2½ marks each.

SECTION—A

1. (a) What are the unique features of RDBMS ?
Describe. 7½
- (b) Draw a comparison among various file organization techniques known to you. 7½

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[P. T. O.]

2. (a) What kinds of Operations are generally performed on Files ? Explain with examples. $7\frac{1}{2}$
- (b) What do you mean by Primary key and Foreign key in RDBMS ? What is their significance ? Describe with a relevant example. $7\frac{1}{2}$
3. (a) What is a Transaction ? How does RDBMS ensure that the transactions are executed properly ? Describe. $7\frac{1}{2}$
- (b) What is Serializability ? How do you test serializability of Schedules ? Discuss with an example. $7\frac{1}{2}$
4. (a) What do you mean by Deadlock ? What are the steps for deadlock recovery ? Brief out. $7\frac{1}{2}$
- (b) What are various locking techniques for concurrency control ? Briefly compare them. $7\frac{1}{2}$

SECTION—B

5. (a) What do you mean by Transaction failure ? What main causes for failures ? Describe. $7\frac{1}{2}$
- (b) What is meant by deferred Database modification ? Explain its process with an example. $7\frac{1}{2}$
6. (a) Explain the Client-Server architecture of Oracle. $7\frac{1}{2}$
- (b) What are various DCL statements ? Describe their usage. $7\frac{1}{2}$
7. (a) What is Pattern matching ? How do you write SQL statements for pattern matching ? Elaborate with examples. $7\frac{1}{2}$
- (b) What are before type Triggers ? What are the applications where you can apply before type Triggers ? Discuss. $7\frac{1}{2}$
8. (a) Oracle offers several date related functions. Discuss some of them with proper syntax. $7\frac{1}{2}$

- (b) What is a Trigger ? Which statements are used for creating and dropping triggers ? Discuss with proper syntax. 7½

SECTION—C

9. Attempt all the following : 6×2½=15
- (i) What are advantages of RDBMS ?
 - (ii) Differentiate between Locking and Time Stamping protocols.
 - (iii) Mention the properties of a Transaction.
 - (iv) What are Database checkpoints ? Why are they used ?
 - (v) How do you use *order by* in a SQL Select statement ?
 - (vi) Differentiate between Outer join and Inner Join.

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PUNJABI COMPULSORY-229

Semester-IV

Time Allowed : Three Hours]

[Maximum Marks : 75

1. (ੳ) 'ਸਮਾਂ' ਕਵਿਤਾ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਲਿਖੋ।

ਜਾਂ

'ਦੋ ਟੋਟਿਆਂ ਦੇ ਵਿੱਚ ਭੋਂ ਟੁੱਟੀ' ਕਵਿਤਾ ਦਾ ਸਾਰ ਲਿਖੋ।

ਜਾਂ

'ਅਸੀਂ ਨਾਨਕ ਦੇ ਕੀ ਲਗਦੇ ਹਾਂ' ਕਵਿਤਾ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਲਿਖੋ। 12

(ਅ) ਕਿਸੇ ਦੋ ਕਵਿਤਾਵਾਂ ਦੀ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ ਕਰੋ :

(i) ਅੰਨ-ਦਾਤਾ!

ਮੇਰੀ ਜੀਭ ਤੇ - ਤੇਰਾ ਲੂਣ ਏ

ਤੇਰਾ ਨਾਂ - ਮੇਰੇ ਬਾਪ ਦਿਆਂ ਹੋਠਾਂ ਤੇ

ਤੇ ਮੇਰੇ ਇਸ ਬੁੱਤ ਵਿੱਚ ਮੇਰੇ ਬਾਪ ਦਾ ਖੂਨ ਏ।

(ii) ਇਸ ਅਦਾਲਤ 'ਚ ਬੰਦੇ ਬਿਰਖ ਹੋ ਗਏ

ਫੈਸਲੇ ਸੁਣਦਿਆਂ ਸੁਣਦਿਆਂ ਸੁਕ ਗਏ

ਆਖੇ ਏਨਾਂ ਨੂੰ ਉਜੜੇ ਘਰੀਂ ਜਾਣ ਹੁਣ

ਇਹ ਕਦੋਂ ਤੀਕ ਏਥੇ ਖੜੇ ਰਹਿਣਗੇ।

(iii) ਤਾਂ ਧੀਆਂ ਨੇ ਕੀ ਲੈਣਾਂ
ਏ ਕਾਲੇ, ਬੋਲੇ, ਹਨੇਰ ਵਿੱਚ ਆ ਕੇ
ਧੀਆਂ ਮੁੜ ਜਾਣ
ਦੁਨੀਆਂ ਦੇ ਦਰਵਾਜ਼ੇ ਤੇ
ਲਹੂ ਖੁੱਕ ਕੇ
ਤੇ ਕਦੇ ਨਾ ਦੇਖਣ
ਆਦਮ ਦੀ ਨਸਲ ਦਾ
ਕੀ ਹਸ਼ਰ ਹੋਇਆ।

(iv) ਰਬ ਖਬਰੇ ਮੈਨੂੰ ਮਿਲ ਹੀ ਪੈਂਦਾ,
ਮਿੰਨਤ ਨਾਲ ਮਨਾ ਭੀ ਲੈਂਦਾ,
ਪਰ ਬੇਤਰਸ ਮਸੰਦ ਮਜ਼ਾਉਰ,
ਰੋਕੀ ਬੈਠੇ ਰਾਹ ਅੜਿਆ।

6×2=12

2. ਹੇਠ ਲਿਖੇ ਪੈਰੂ ਦਾ ਪੰਜਾਬੀ ਵਿੱਚ ਅਨੁਵਾਦ ਕਰੋ :

Today environmental pollution has become a great health hazard so much so that man's existence is threatened. Men's callous treatment of nature has brought the situation to this pass, vehicular smoke and smoke from factory chimneys has left the air unfit to breath in water too is contaminated.

9

3. ਗੁਰਮੁੱਖੀ ਲਿੱਪੀ ਦੇ ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ ਬਾਰੇ ਚਰਚਾ ਕਰੋ।

ਜਾਂ

ਲਿੱਪੀ ਕੀ ਹੁੰਦੀ ਹੈ ? ਗੁਰਮੁੱਖੀ ਲਿੱਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਈਆਂ ਦੱਸੋ।

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4. ਹੇਠ ਲਿਖੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਸੰਖੇਪ ਉੱਤਰ ਲਿਖੋ :

- (i) ਸਮੇਂ ਨੂੰ ਕਿਸ ਗੱਲ ਲਈ ਵਾਸਤੇ ਪਾਏ ਗਏ ਹਨ ?
- (ii) 'ਗੁਲਾਬ ਦਾ ਫੁੱਲ ਤੋੜਨ ਵਾਲੇ ਨੂੰ' ਕਵੀ ਕੀ ਕਹਿਣਾ ਚਾਹੁੰਦਾ ਹੈ ?
- (iii) ਵਿਸਾਖੀ ਦੇ ਮੇਲੇ ਵਿੱਚ ਵਣਜਾਰੇ ਵੇਚਣ ਲਈ ਕੀ ਕੁਝ ਲਿਆਏ ਹਨ ?
- (iv) ਕਵੀ ਅਨੁਸਾਰ ਗੁਲਾਮੀ ਦੇ ਦਾਗ ਕਿਵੇਂ ਧੋਤੇ ਜਾ ਸਕਦੇ ਹਨ ?
- (v) ਕਵੀ ਅਨੁਸਾਰ ਭਗਤ ਸਿੰਘ ਨੂੰ ਲੋਕਾਈ ਕਿਉਂ ਯਾਦ ਕਰਦੀ ਹੈ ?
- (vi) ਕਵਿਤਾ ਵਿਚਲੀ ਮੁਟਿਆਰ ਖਾਨਗਾਹ ਤੇ ਕੀ ਕਰਨ ਆਈ ਹੈ ?
- (vii) ਕਵਿਤਾ ਵਿੱਚ ਰੋਂਦੀਆਂ ਧੀਆਂ ਵਾਰਿਸ ਸ਼ਾਹ ਨੂੰ ਕੀ ਕਹਿ ਰਹੀਆਂ ਹਨ ?
- (viii) 'ਉਸਦਾ ਹਾਰ' ਕਵਿਤਾ ਵਿੱਚ ਨਾਜ਼ੁਕ-ਤੂਨੀਰ ਤੋਂ ਕੀ ਭਾਵ ਹੈ ?
- (ix) ਕਵੀ ਅਨੁਸਾਰ ਧਰਤੀ ਦੇ ਹੇਠਾਂ ਕੌਣ-ਕੌਣ ਹਨ ?
- (x) ਸਜੇ ਹੋਏ ਘਰ ਵਿੱਚ ਮੈਂ—ਕਵੀ ਦਾ ਦਮ ਕਿਉਂ ਘੁਟ ਰਿਹਾ ਹੈ ?
- (xi) 'ਕੰਡਿਆਲੀ ਥੋਰ' ਕਵਿਤਾ ਦਾ ਲੇਖਕ ਕੌਣ ਹੈ ?
- (xii) ਪੰਜਾਬੀ ਦੇ ਸਵਰ ਕਿੰਨੇ ਹਨ ?
- (xiii) ਨਾਸਕੀ ਧੁਨੀਆਂ ਕੀ ਹੁੰਦੀਆਂ ਹਨ ?
- (xiv) ਲਗਾਖਰ ਤੋਂ ਕੀ ਭਾਵ ਹੈ ?
- (xv) ਚਾਰ ਵਿਅੰਜਨ ਧੁਨੀਆਂ ਲਿਖੋ।

15×2=30