# A-211

## B.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA-101-B

### HUMAN VALUES AND
### PROFESSIONAL ETHICS

*Time : 3 Hours*]        [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note** : Q. No. **1** is compulsory. Besides Q. No. **1**, attempt *Four* more questions in selecting at least *one* question from each Unit.

1. Write short notes on the following :

   (a) Self Exploration

   (b) Sanyam and Swasthya

   (c) Ubhay-tripti

   (d) Harmony in the nature

   (e) Human values.

## Unit I

2. Explain your understanding about content and process for value education. **15**

3. Explain the meaning of relationship and physical need and its requirement to fulfill the aspirations of every human being. **15**

## Unit II

4. What do you mean by body as an instrument of "I" (I being the doer, seer and enjoyer) ? **15**

5. Discuss your understanding about the needs of Self ("I") and "Body". **15**

## Unit III

6. What is harmony in the family and the basic unit of human interaction ? **15**

7. How the concept of undivided society and universal order help to achieve from family to world family ? **15**

## Unit IV

8. Explain the scope and characteristics of people-friendly and ecofriendly producion system. **15**

9. Discuss the meaning of co-existence (Sah-astitva) of mutually interacting units in all pervasive space. **15**

# A-161

## B.C.A. EXAMINATION, Dec. 2017

(First Semester)

(Old Scheme) (Re-appear Only)

(BCA)

BCA-101

MATHEMATICAL FOUNDATION

*Time : 3 Hours*]      [*Maximum Marks* : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note** : Attempt any *four* questions out of Sections A, B and C by selecting at least *one* question from each Section. Q. No. 1 is compulsory. All questions carry equal marks.

1. (a) Define rank of a matrix.

(b) Find values of $x$, if $\begin{vmatrix} 2 & 4 \\ 5 & 1 \end{vmatrix} = \begin{vmatrix} 2x & 4 \\ 5 & x \end{vmatrix}$.

(c) Define geometric mean.

(d) Evaluate :

$$\underset{x \to 0}{Lt} \frac{1 - \cos x}{2x^2}$$

(e) Examine whether the function $f$ given by

$$f(x) = \begin{cases} x^3 + 3 , & \text{if } x \neq 0 \\ & \text{if } x = 0 \end{cases}$$

is continuous at $x = 0$.

(f) If $y = x^x$, find $\dfrac{dy}{dx}$.

(g) State mean value theorem.

(h) Integrated $\displaystyle\int \frac{1 - \sin x}{\cos^2 x} dx$.

(i) State fundamental theorem of calculus.

(j) Find the angle between two vectors $\vec{a}$ and $\vec{b}$ with magnitudes 1 and 2 respectively and $\vec{a}.\vec{b} = 1$.

## Section A

2. (a) Show that :

$$\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix} = \left( a^3 + b^3 + c^3 - 3abc \right)$$

(b) If $A = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$, show that :

$A_3 - 3A - 2I = 0$ and hence find $A^{-1}$.

3. (a) Apply Gauss elimination method to solve the equations :

$$x + 4y - z = -5$$
$$x + y - 6z = -12$$
$$3x - y - z = 4$$

(b) Find the eigen values and eigen vectors of the matrix :

$$A = \begin{bmatrix} 3 & 1 & 4 \\ 0 & 2 & 6 \\ 0 & 0 & 5 \end{bmatrix}$$

4. Calculate mean, variance and standard deviation for the following distribution :

| Classes | Frequency |
|---------|-----------|
| 30-40 | 3 |
| 40-50 | 7 |
| 50-60 | 12 |
| 60-70 | 15 |
| 70-80 | 8 |
| 80-90 | 3 |
| 90-100 | 2 |

## Section B

5. (a) Discuss the continuity of the function of given by :

$$f(x) = \begin{cases} x, & \text{if } x \geq 0 \\ x^2, & \text{if } x < 0 \end{cases}$$

(b) Show that :

$$\underset{x \to 0}{\text{Lt}} \frac{e^{1/x} - 1}{e^{1/x} + 1} \text{ does not exist.}$$

6. (a) Find $\frac{dy}{dx}$ if $x^y = y^x$.

(b) Find the asymptotes of the curve :

$$(x + y)^2 (x + y + z) = x + 9y - 2$$

## Section C

7. (a) Evaluate the integral :

$$\int e^x (\sin x + \cos x) dx$$

(b) Find :

$$\int \frac{3x - 2}{(x+1)^2 (x+3)} dx$$

8. (a) If $\bar{a}$ is a unit vector and $(\bar{x} - \bar{a}).(\bar{x} + \bar{a}) = 8$ then find $|\bar{x}|$.

(b) Find the area of the triangle having the points $A(1, 1, 1)$, $B(1, 2, 3)$ and $C(2, 3, 1)$ as its vertices.

(b) The sum of the third and seventh terms of an A.P. is 6 and their product is 8. Find the sum of first 16 terms of this A.P.

# A-212

## B.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA-103-B

MATHEMATICS-I

*Time : 3 Hours*]       [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit and the compulsory Question No. 1.

1. (a) If $\cot x = \dfrac{-5}{12}$ such that $n$ lies in second quadrant, find the values of other five trigonometric functions.

   (b) Prove that :

   $\tan 3x \tan 2x \tan x = \tan 3x - \tan 2x - \tan x$

   (c) Using Binomial theorem, indicate which number is larger $(1.1)^{10000}$ or $1000$.

   (d) Find the value of $x$ for which the points $(x, -1)$, $(2, 1)$ and $(4, 5)$ are collinear.

   (e) Find the roots of $\sqrt{2}x^2 + 7x + 5\sqrt{2}x = 0$ by factorization.

   (f) Check whether 301 is a term of list of number 5, 11, 17, 23, ........

## Unit I

2. (a) Prove that :

   $$\tan^{-1}\left[\dfrac{\sqrt{1+\cos x} + \sqrt{1-\cos x}}{\sqrt{1+\cos x} - \sqrt{1-\cos x}}\right] = \dfrac{\pi}{4} - \dfrac{x}{2}$$

   where $\pi < x < 3\pi/2$.

   (b) Prove that :

   $$\cos^2 x + \cos^2\left(x + \dfrac{\pi}{3}\right) + \cos^2\left(x - \dfrac{\pi}{3}\right) = \dfrac{3}{2}$$

3. (a) Show that :

   $$\dfrac{\sin 5x + \sin 3x}{\cos 5x + \cos 3x} = \tan 4x$$

   (b) Solve :

   $$\sin 2x - \sin 4x + \sin 6x = 0$$

   (c) Prove that :

   $$\cos^2 x + \cos^2\left(x + \dfrac{\pi}{3}\right) + \cos^2\left(x - \dfrac{\pi}{3}\right) = \dfrac{3}{2}$$

## Unit II

4. (a) Using Binomial theorem, prove that for $x \geq 1$, $6^n - 5n$, leaves the remainder 1, when divided by 25.

   (b) The coefficients of the $(r-1)$th, $r$th and $(r+1)$th terms in the expansion of $(x+1)^n$ are in the ratio $1 : 3 : 5$. Find $n$ and $r$.

5. (a) Find a quadratic polynomial, the sum and product of zeros are $\sqrt{2}$ and $\frac{1}{3}$ respectively.

(b) The difference of squares of two numbers is 180. The square of smaller number is 8 times the larger number. Find the two numbers.

## Unit III

6. (a) If the angle between two lines is $\frac{\pi}{4}$ and slope of one of the lines is $\frac{1}{2}$, find the slope of the other line.

(b) The base of an equilateral triangle with side $2a$ lies along the $y$-axis such that the midpoint of the base is at the origin. Find the coordinates of vertices of the triangle.

7. (a) A line perpendicular to the line segment joining the points $(1, 0)$ and $(2, 3)$ divides it in the ratio $1 : x$. Find the equation of the line.

(b) Find the distance of the line $4x - y = 0$ from the point $P(4, 1)$ measured along the line making an angle of $135°$ with the positive $x$-axis.

## Unit IV

8. (a) The sum of the 4th and 8th terms of an A.P. is 24 and the sum of the 6th and 10th terms is 44. Find the first three terms of A.P.

(b) How many terms of AP : 24, 21, 18,...... must be taken so that their sum is 78 ?

9. (a) Find the sum of the following series :

(i) $10 + 20 + 40 + 80 + \ldots\ldots + \infty$

(ii) $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \ldots\ldots$

9. Explain the following :

  (a) Installing software

  (b) Detection of Viruses. 15

# A-213

## B.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA-105-B

PERSONAL COMPUTING
SOFTWARE AND HARDWARE

*Time* : 3 *Hours*]      [*Maximum Marks* : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note** : Attempt *Five* questions in all. Q. No. **1** is compulsory. Attempt *four* questions selecting at least *one* question from each Unit. All questions carry equal marks.

1. (a) Define Computer. Write its two characteristics. **5×3**

   (b) What do you operating system files ?

   (c) Write the procedure to prepare a batch file.

   (d) Name two internal cards with their functional description.

   (e) Define computer topologies. Explain any *one* in detail. **5×3**

## Unit I

2. What are various types of computers based upon size, architecture and chronology ? **15**

3. Define computer language. Explain various generations of computer languages. **15**

## Unit II

4. What do you mean by booting of a computer system ? Write the booting sequence. Also explain the process of booting from floppy.

   **15**

5. Explain the following DOS commands : **3×5**

   (a) RESTORE

   (b) ATTRIB

   (c) SYS

## Unit III

6. What are DOS utility commands ? Explain the following :

   (a) MEMMAKER

   (b) MSAV

   (c) SCANDISK **3×5**

7. Explain the following in reference to Windows :

   (a) Help feature

   (b) File management

   (c) Disk operation. **3×5**

## Unit IV

8. Name and explain functions of various physical components of a computer system. **15**

## Section C

6. List the different types of operating systems. Write the features of each type. **15**

7. (a) What are the main parts of a DBMS ? Write the responsibilities of DBA. **9**

   (b) List the different categories users involved in a DBMS. **6**

## Section D

8. (a) Differentiate between digital and analog transmission. **6**

   (b) What are different types of networks based on size ? Briefly discuss each. **9**

9. (a) Explain Client-Server Network architecture. **8**

   (b) Write the different headers of an e-Mail message. Explain purpose of each. **7**

# A-215

### B.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA-107-B

## INFORMATION TECHNOLOGY FUNDAMENTALS

*Time* : 3 *Hours*]      [*Maximum Marks* : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note** : Attempt *Five* questions in all. Q. No. **1** is compulsory. Attempt *four* from Sections A, B, C selecting at least *one* question from each Section. All questions carry equal marks.

1. (a) (i) What are different types of memory supported by a computer system ?

(ii) What is the purpose of "functional" keys on keyboard ?

(iii) Define system software.

(iv) Name any *four* operating systems.

(v) What do you mean by RDBMS ?

(vi) What do you mean by web browser ?

(vii) What is Pluggin ?

(viii) What is the use of modem ?

(ix) Write full form of HTTPs. 9×1=9

(b) (i) Differentiate between cold booting and warm booting.

(ii) Differentiate between interpreter and compiler.

(iii) Differentiate between CC and Bcc fields in an e-Mail. 2×3=6

## Section A

2. Draw and explain the block diagram of a computer system. 15

3. (a) Differentiate between primary and secondary memory. 5

(b) Explain the process of addition and subtraction of binary numbers with the help of suitable examples. 10

## Section B

4. (a) Write *five* characteristics of assembly language. 5

(b) Write pseudocode for calculating the average height of male and female students of your class. Also draw the flow chart for the same. 10

5. (a) Write the advantages of high level languages over low level languages. What are different types errors the programmers may commit during programming. 10

(b) Define a linker. Why is it used ? Explain briefly the linking process. 5

*Or*

Write a review of the book you have read recently as part of your syllabus or otherwise.

# A-214

## B.C.A. EXAMINATION, Dec. 2017

(First Semester)

(Main & Re-appear)

ENGLISH-I

HUM-501-B

*Time : 3 Hours]*          *[Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

**Note :** Attempt *Five* questions in all. Each question carries 15 marks. Q. No. **1** is compulsory. Students are required to attempt other *four* questions selecting *one* question from each Unit.

## Section A

1. (a) Correct any *five* of the following sentences :

   (i) She always finds faults with her husband.

   (ii) Some people attended the meeting, and test was absent.

   (iii) Economic is a dry subject.

   (iv) Delhi is hot than Srinagar.

   (v) Of the two plans, this is the best.

   (vi) Either Manoj or Madhu have the key to this problems.

   (vii) Five hours are too short a time to judge one's character.

   (viii) You donot need worry about us. 5

## Section B

   (b) Fill in the blanks in any *five* of the sentences below from the options given against each :

   (i) After a recent mild paralytic attack his movements are............restricted; otherwise he is still very active.

   (1) entirely

   (2) slightly

   (3) frequently

   (4) nowhere

   (ii) I take interest............film-making.

   (1) to

   (2) in

   (3) with

   (4) on

   (iii) He............that he would come.

   (1) requested

   (2) said

   (3) asked

   (4) urged

   (iv) We need an unsually gifted person to solve this............problem.

   (1) sensitive

   (2) sensible

   (3) spurious

   (4) Sensual

(v) The Hindus are a.............majority in India.

    (1) Linguistic

    (2) Religious

    (3) Class

    (4) Demographic

(vi) Narain.............the situation quickly and decided on the best course of action.

    (1) measured

    (2) assessed

    (3) managed

    (4) accepted

## Section C

(c) Write a short note on uses of computers in day to day office work.    **3**

## Section D

(d) Write briefly points to be taken care while drafting or sending e-mails.    **2**

## Unit I

2. Correct the following sentences :

    (i) That road is closed for repair.

    (ii) He gives the air of a rich man.

    (iii) He is a man of his words.

    (iv) Her house is full of furnitures.

    (v) Pay my respect to your father.

    (vi) He is a most perfect gentleman.

    (vii) I know the both girls.

    (viii) Our office is nearest to the post office.

    (ix) Do not speak so fastly.

    (x) She is the more beautiful of all the girls.

$$10 \times 1\frac{1}{2} = 15$$

### Or

Fill in the blanks in the following sentences by picking up the right alternative :

    (i) Each of the suspected men (were/was) arrested.

    (ii) Gulliver's travels (are/is) a captivating book.

(iii) Most of the classical music (sends/send) me to sleep.

(iv) The flock (was/were) running here and there in the ground.

(v) The luggage (are/is) kept in the waiting room.

(vi) I saw him (cross/to cross) the road.

(vii) We felt the earth (to shake/shake)

(viii) I let them (play/ to play) in the park.

(ix) It is foolish (to touch/touching) a live wire.

(x) I don't like Tom's (to watch/watching) TV all the time. 10×1½=15

## Unit II

3. Pick up any *ten* of the following terms and define them or clarify their meanings :

(i) Brain storming

(ii) Group Discussioin

(iii) Virtual Reality

(iv) Conference

(v) Panel Discussion

(vi) Resume

(vii) Stop watch

(viii) E-mail

(ix) CPU Chips

(x) Program

(xi) Output

(xii) Tablet

(xiii) I beg your pardon

(xiv) Adolescence.

*Or*

Think of any ten terms from the areas of a cademic world, technology, sports or life stages and define them. 10×1½=15

## Unit III

4. Comprehend the passage below and answer the questions that follow :

In the 1970s Commodore was one of many electronics companies selling calculators

designed around dallas based Texas Instruments CPU chips, a hardware within a computer that carries out the instructions of a computer program by performing the basic arithmetical, ligical and input/output operations of the system. However, in 1975 T I increased the price of these components to the point where the chip set cost more than an entire TI calculator, and the industry that had built up around it was frozen out of the market. Commodore responded to this by searching for a chip set they could purchase outright. The quickly found MOS technology, who were in the process of bringing their 6502 microprocessor design to market, and with whom came chuck Peddle's KIM-I design, a small computer kit based on the 6502. At Commodore, Peddle convinced Jack Tramiel that calculators were a deadend.

*Questions :*

(i) What CPU stands for ? 2

(ii) What are CPU chips ? 2

(c) With whom is associated chuck peddle's KIM-I ?

(d) What is the basis of Chuck Peddle's KIM-I design ? 2

(e) What is Texas Instruments to you after reading the above paragraph ? 2

(f) Use 'design', 'logical', 'price', 'convince', 'microprocess' in your own sentences. 5

*Or*

Draft a print advertisement for promoting the sale of the desktop computers your company manufactures. Ad may be utilized for newspapers or magazines. 15

### Unit IV

5. Write an e-mail to your friend who has joined B. Tech. Computer Engg. about the new tablet you have recently purchased. Describe its features as well. Invent the necessary details.

15