

20



# ARKA JAIN University, Jharkhand

2/12/19

1<sup>st</sup> Semester End Semester Examination – 2019-20

Subject : Discrete mathematics

Course: BCA

Full Marks: 70

Pass Marks: 28

Time : 3 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A, B & C**
- **Part-A** is compulsory.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **SIX** questions out of which **THREE** questions are to be answered.
- **Part-D** is compulsory

## PART A

**Q1.) All questions are compulsory:-**

### **A) Objective Answer Type**

**(5x1=5)**

i) If set having 'n' number of elements then total no of improper subset will be

- a)  $2^{n-2}$
- b)  $2^n - 2$
- c) 2
- d) none of these

ii) let A be the set of all lines in a plane then the relation  $R = \{(l_1, l_2) : l_1 \perp l_2\}$  is

- a) reflexive
- b) symmetric
- c) transitive
- d) None of these

iii) if the function  $f: R \rightarrow R$  and  $f(x) = [x]$  is then range will be

- a) R
- b)  $R_+$
- c) Z
- d) none of these

iii) How many 3-digits numbers are there with no digit repeated ?

- a) 568
- b) 648
- c) 330
- d) None of these

v) if n is natural number then  $1^3 + 2^2 + 3^2 \dots \dots n^2$  is equal to

- a)  $\frac{n(n+1)}{2}$
- b)  $\frac{n(n+1)(2n+1)}{6}$
- c)  $\left\{\frac{n(n+1)}{2}\right\}^2$
- d) None of these

### **B) Short Answer Type**

**(5x2=10)**

- i) Define partition of set?
- ii) Define Universal quantifier?

- iii) If  $A = \{1, \{\emptyset\}\}$  find  $p(A)$
- iv) Define degree of vertices?
- v) In how many ways can 4 letters be posted in 3 letter boxes

### PART B

**Q2.) Answer any four:**

**(4x5=20)**

- i) Using principal of mathematical induction prove that  $(3^{2n+2} - 8n - 9)$  is divisible by 8
- ii) A committee of 5 is to be formed out 6 men and 4 ladies. In how many ways can this can be done when
  - (a) At least 2 ladies are included .
  - (b) At most 2 ladies are included?
- iii) Let  $f: Q \rightarrow Q: f(x) = 3x - 5$  show that  $f$  is invertible and find  $f^{-1}$
- iv) Define conditional and biconditional statements with truth table? Also define converse, inverse and contra positive, of  $p \rightarrow q$ .
- v) find the value of  $f(1), f(2), f(3), f(4)$ , and  $f(5)$  if  $f(n+1) = 3f(n)$  is defined recursively by  $f(0) = 1$  and for  $n = 0, 1, 2, 3, \dots$
- vi) In a single throw of two dice, find the probability that neither a doublets nor a total of 10 will appear.
- vii) Find the gcd of 119 and 272 .also express the gcd as a linear combination of 119 and 272.

### PART C

**Answer any Three:**

**(3x10=30)**

**Q3.)** State and prove that de Morgan's theorem in general form?

**Q4.)** Let  $f: X \rightarrow Y$  be a mapping and let  $A, B \subseteq Y$ . then

Prove that (i)  $f^{-1}(A \cap B) = f^{-1}(A) \cap f^{-1}(B)$

(ii)  $f^{-1}(A \cup B) = f^{-1}(A) \cup f^{-1}(B)$ .

**Q5.)** prove that the relation' congruence modulo  $n'$  in the set of integers is an equivalence relation?

**Q6.)** there was two bags I and bag II. Bag I contains 3white and 4 black balls and BagII contains 5 white 6 black balls. one ball is drawn at random from one of the bags and is found to be white. Find the Probability that it was drawn from bag I?

**Q7.)** If the binary operation\* on set of real numbers defined by  $a * b = a + b + ab$  show that it is

- i) Commutative
- ii) Associative
- iii) Find identity and inverse elements

**Q8.)** show that each of the following is tautology

- (i)  $[p \wedge (p \rightarrow q)] \rightarrow q$
- (ii)  $[(p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow (p \rightarrow r)$

### PART D

**Q9.)** Consider the experiment of tossing a coin. If the coin shows head, toss it again but if It shows tail, then throw dice. Find the conditional probability of the event that the die shows number greater than 4 given that there is at least one tail. **(5x1=5)**



# ARKA JAIN University, Jharkhand

1<sup>st</sup> Semester End Semester Examination – 2019-20

Subject: Programming in C

Course: BCA

Full Marks: 70

Pass Marks: 28

Time: 3 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A,B& C**
- **Part-A** is compulsory.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **SIX** questions out of which **THREE** questions are to be answered.

## PART A

Q1.) All questions are compulsory:-

A] Objective Answer Type

(10x1=10)

i) C programs are converted into machine language with the help of

- a) An Editor
- b) A compiler
- c) An operating system
- d) None of the above

ii) Which is correct with respect to size of the datatypes ?

- a) char > int > float
- b) int > char > float
- c) char < int < double
- d) double > char > int

iii) Which of the following is/are syntactically correct?

- a) for ( ) ;
- b) f or ( ; ) ;
- c) for ( , ) ;
- d) for ( ; ; ) ;

iv) Which of the following comments about union are true?

- a) Union is a structure whose members share the same storage area
- b) Size allocated for union is the size of its member needing the maximum storage
- c) Only one of the members of union can be assigned a value at a particular time
- d) All of these

v) Which of the following 'C' type is not a primitive data structure?

- a) int
- b) Float
- c) Char
- d) None of these

vi) The variables which can be accessed by all modules in a program, are called

- a) local variables
- b) internal variables
- c) external variable
- d) Global variables

vii) A function that uses variable types is called

- a) Overloaded
- b) Template Function
- c) Variable function
- d) Virtual function

viii) Standard ANSI C recognizes \_\_\_ no of Keywords

- a) 30
- b) 32
- c) 24
- d) 36

ix) Prototype of a function means \_\_\_\_\_

- a) Name of Function
- b) Output of Function
- c) Declaration of Function
- d) Input of a Function

x) If you pass an array as an argument to a function , what actually gets passed?

- a) Value of elements in array
- b) Address of the last element of array
- c) First element of array
- d) Base address of the array

**B] Short Answer Type**

**(5x2=10)**

- i) What is operators?
- ii) What is structure?
- iii) Why we use Print function and Scan function in c?
- iv) What do you mean by recursion in c?
- v) What is function prototype?

**PART B**

**Q2.) Answer any four:**

**(4x5=20)**

- i) What is array? How many types of arrays. Explain it in detail
- ii) Explain about the pseudo code statement and flowchart symbol in details..
- iii) Write a program in c to find the Simple interest.
- iv) Explain about the program development cycle with the help of diagram.
- v) Discuss about the types of programming language .
- vi) Write a Program in c to perform the swapping of 2 numbers.

**PART C**

**Answer any Three:**

**(3x10=30)**

**Q3.)**What do you mean by data types in c ?Explain it in details:

**Q4.)**What is Function in c? Explain about the function definition , function declaration and function call with the help of program.

**Q5.)**What do you mean by file handling in C? How we create, read and delete text files?

**Q6.)**Whatdo you mean by Function call by value and call by reference. Explain with the help of program.

**Q7.)**Discuss about the For , while and do-while loop in c. Explain its types in detail with the help of programming

**Q8.)** What do you mean by Pointers in C ? Write a program in c to demonstrate the working of pointer.



# ARKA JAIN University, Jharkhand

1<sup>st</sup> Semester End Semester Examination – 2019-20

Subject: Basic Computer Engineering

Course: BCA

Full Marks: 70

Pass Marks: 28

Time: 3 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A,B& C**
- **Part-A** is compulsory.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **SIX** questions out of which **THREE** questions are to be answered.

## PART A

Q1.) All questions are compulsory:-

(10x1=10)

A) Objective Answer Type

1. In which generation, the use of transistor was introduced?
  - a. 1<sup>st</sup> generation
  - b. 2<sup>nd</sup> generation
  - c. 3<sup>rd</sup> generation
  - d. 4<sup>th</sup> generation
2. How many types of logic gates?
  - a. 3
  - b. 2
  - c. 5
  - d. 7
3. Which of the following is not a part of the CPU?
  - a. Control unit
  - b. Logic unit
  - c. Registers
  - d. Main memory
4. Which device is known as Pointing device?
  - a. Mouse
  - b. Printer
  - c. Monitor
  - d. Keyboard
5. How many layers are there in TCP/IP network model?
  - a. 4
  - b. 5
  - c. 3
  - d. 7
6. Which of the memory uses ultraviolet light to erase the content?
  - a. RAM
  - b. ROM
  - c. PROM
  - d. EPROM

7. Which of the following is a privately owned network?
  - a. LAN
  - b. WAN
  - c. MAN
  - d. Internet
8. Which of the following is example of the pointing device ?
  - a. Mouse
  - b. Trackball
  - c. Joystick
  - d. All of the above
9. Which of the following is a messaging Protocol?
  - a. HTTP
  - b. SMTP
  - c. RDP
  - d. Talent
10. Which of the following is not known as primary memory?
  - a. RAM
  - b. Cache
  - c. ROM
  - d. Main

**B] Short Answer Type**

- a. What is instruction set and instruction format?
- b. What is application and system software?
- c. What do you mean by hardware and software?
- d. What do you mean by data communication?
- e. Define switching.

(5x2=10)

**PART B**

**Q2.) Answer any four:**

(4x5=20)

- i) What is programming language? How many types of programming languages. Explain in details.
- ii) Solve the following conversions
  - a)  $(25)_8 \rightarrow ( )_2$
  - b)  $(1000)_2 \rightarrow ( )_{10}$
  - c)  $(40.52)_{10} \rightarrow ( )_2$
  - d)  $(1101.1101)_2 \rightarrow ( )_{16}$
  - e)  $(010001011)_2 \rightarrow ( )_8$
- iii) What is memory .Briefly describe the types of memory.
- iv) What is input device. Explain any two types of input devices in details.
- v) What is Network topology. Explain all the different types of network topology.
- vi) What is computer program? Explain the features of good programming languages.

### PART C

Answer any Three:

(3x10=30)

Q3.) Design the Basic and Universal logic gates with their truth tables.

Q4.) What is computer? Explain all the generations of computer.

Q5.) What is Operating system? How many types of operating system. Discuss in detail

Q6.) What is Electronic mail? How E-mail works.

Q7.) What is computer virus. How many types of computer viruses.

Q8.) Write short notes on

- a) Transmission Media
- b) Optical disk
- c) Monitor
- d) CPU





# ARKA JAIN University, Jharkhand

1<sup>st</sup> Semester End Semester Examination – 2018-19

Subject: Hindi

Course: B.Com/BCA/BA

Full Marks: 35

Pass Marks: 14

Time: 2 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A, B & C**
- **Part-A** is compulsory.
- **Part- B** contains **FOUR** questions out of which **THREE** questions are to be answered.
- **Part- C** contains **THREE** questions out of which **TWO** questions are to be answered.

## PART A

Q.1) All questions are compulsory

A] Multiple Choice Questions :

(4x1=4)

(i) प्रेमचंद किस राज्य के थे ?

क बिहार                      ख झारखंड

ग उत्तरप्रदेश                  घ बंगाल

(ii) असदखाँ और तूरया के बीच क्या संबंध है ?

क बाप-बेटी                      ख मामा -मामी

ग बुआ -चाचा                  घ भाई -बहन

(iii) सरदार हिमत सिंह किस कहानी का पात्र हैं ?

क मंत्र                              ख फातिहा

ग कप्तान साहब                  घ जिहाद

(iv) फातिहा साहित्य की कौन विधा है ?

क कहानी                      ख कविता

ग नाटक                          घ इनमे से कोई नहीं

Q1 (B) . Very Short question

(2x2=4)

(i) अर्थ स्पष्ट करे :निंदक नियेरे राखिये, आँगन कुटी छावायें ।  
बिन पानी साबुन बिना, निर्मल करे सुहाए ॥

(ii) निम्नलिखित शब्दों के दो दो पर्यायवाची शब्द लिखे

क अहंकार

ख इच्छा

### PART B

Q2. Answer any three

(3\*5= 15)

(i) अर्थ स्पष्ट करे:-

- 1) कानपुर के नाना की मुह बोली बहन छबिली थी, लक्ष्मीबाई नाम, पिता की वो संतान अकेली थी, नाना के सँग पढ़ती थी वो नाना के सँग खेली थी बरछी, ढाल, कृपाण, कटारी, उसकी यही सहेली थी। वीर शिवाजी की गाथाएँ उसकी याद ज़बानी थी, बुंदेले हरबोलों के मुँह हमने सुनी कहानी थी, खूब लड़ी मर्दानी वो तो झाँसी वाली रानी थी।
- 2) समास की परिभाषा लिखे। उनके भेदों को उदाहरण सहित लिखे ?
- 3) विपरीत शब्द लिखे :-

क अपमान    ख अनाथ    ग इष्ट    घ आसमान    इ आधुनिक

(iv) शिक्षण शुल्कमाफ कराने हेतु प्रधानाचार्य के पास आवेदन पत्र लिखिए

### PART C

Answer any two:

(6\*2= 12)

निबंध लिखे

3. वस्तु एवं सेवा कर अथवा बिज्ञान वरदानया अभिशाप

4. निम्नलिखित शब्दावली का हिन्दी में अनुवाद करे

- (i) Head Clerk
- (ii) Controller
- (iii) Recourses
- (iv) Loss
- (v) Policy Holder
- (vi) Rate

5. मंत्र कहानी का सारांश लिखे.



## ARKA JAIN University, Jharkhand

1<sup>st</sup>Semester Final Examination – 2019-20

Subject: Business Communication

Course: BCA

Full Marks:70

Pass Marks: 28

Time:3 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts –A,B& C
- Part-A is compulsory.
- Part- B contains SIX questions out of which FOUR questions are to be answered.
- Part- C contains SIX questions out of which THREE questions are to be answered.

### PART A

Q.1) All questions are compulsory

A] Multiple Choice Questions:

(10x1=10)

- The most important goal of Business communication is \_\_\_\_\_
  - Favorable relationship between sender and receiver.
  - receiver response
  - organizational goodwill
  - receiver understanding
- The study of communication through touch is \_\_\_\_\_
  - Haptic
  - Semantics
  - Chronemics
  - None of the above
- Appeals and representations are used in \_\_\_\_\_ communication.
  - Horizontal
  - Downward
  - Visual
  - Upward
- Which one of the following best describes grapevine as a communication pattern?
  - Diagonal
  - Informal
  - Serial
  - Verbal
- The principle of effective writing includes
  - Accuracy
  - Clarity
  - Brevity
  - All of the above
- To decode a message is to
  - Translate ideas into code
  - Interpret a message
  - Reject a message
  - Evaluate a message
- The ability to communicate effectively is \_\_\_\_\_.
  - a hard skill
  - a soft skill
  - a medium skill

d) not a skill at all  
viii \_\_\_\_\_ is a more powerful agent of persuasion and control.

- a) Speech
- b) Speaker
- c) Receiver
- d) decoder

ix \_\_\_\_\_ is quite a physical barrier to communication

- a) Noise
- b) Interpretation of words
- c) Decoding
- d) A and b

X the effort to influence the attitude, feeling or beliefs is \_\_\_\_\_

- a) Suggestion
- b) Instruction
- c) Persuasion
- d) Motivation

### B] Very Short question

(5x2=10)

- a) How does informal communication helps in solving problem in an organization?
- b) what is an effective communication?
- c) Explain the role of Feedback in the procedure of communication.
- d) Explain whether the following sentence is grammatically right or wrong:  
‘The cat sat beside me drinking coffee.’
- e) Describe two types of non-verbal communication

### PART B

#### Q2. Answer any four:

(4x5=20)

1. How is oral communication more effective than written form of communication?
2. Listening is an important element in communication. Elaborate.
3. Explain diagrammatically the process of communication.
4. Differentiate between the given homonyms by using them in a sentence:
  - a. Leave; leave
  - b. Incite, Insight
  - c. Beat, beat
  - d. Knew – new
  - e. Rain, Reign
5. Discuss grapevine communication.
6. What do you understand by psychological barrier? How does it affect the process of communication?

### PART C

#### Answer any three:

(3x10=30)

1. Write a story on:  
“Riya was going to the college and on her way to the college.....”
2. Define verbal communication. Explain its advantages and disadvantages.
3. How can you further classify formal and informal communication?
4. Business communication is the nervous system of any organization. Explain?
5. Discuss merits and demerits of oral and written communication. Explain what type of communication do you prefer.
6. Suggest some methods to overcome barriers of communication



# ARKA JAIN University, Jharkhand

1<sup>st</sup>Semester End Semester Examination – 2018-19

Subject: ITA

Time: 3 Hours

Course: BCA

Full Marks: 35

Pass Marks: 14

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A,B& C**
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## PART A

**Q1.)All questions are compulsory:-**

**A] Objective Answer Type**

**(10x1=10)i)**

i) Who is known as the father of Modern Computer?

- a) Charles Babbage
- b) Alan Turing
- c) Isaac Newton
- d) None of the above

ii) Who is the inventor of "Difference Engine"?

- a) Alan Turing
- b) Charles Babbage
- c) Simur cray
- d) Augusta adaming

iii) In how many phases the evolution of IT industry was occurred?

- a) 1
- b) 2
- c) 3
- d) 4

iv) Who was known as the first computer programmer?

- a) Ada Lovelace
- b) Alan Turing
- c) Charles Babbage
- d) Isaac Newton

v) In which year Charles Babbage was born

- a) 1791
- b) 1991
- c) 1891
- d) 1792

vi) The Y2K problem was occurred in which year

- a) 2000
- b) 2001

- c) 2002
- d) 2004

vii) In which year government formulated software Policy

- a) 1991
- b) 1986
- c) 1987
- d) 1992

viii) The life cycle of business / IT company comprises of

- a) 5
- b) 4
- c) 6
- d) 7

ix) In which year Ada Lovelace was died

- a) 1852
- b) 1854
- c) 1853
- d) 1851

x) Alan Mathison Turing was born in

- a) In 1911
- b) In 1912
- c) In 1954
- d) In 1945

### PART B

Q2.) Answer any four:

(4x5=20)

- i) Explain the Scope of Technology?
- ii) What are the advantages and disadvantages of Information Technology. Explain it in details
- iii) Describe the phases of Technology?
- iv) What are the main functions of Information Technology?
- v) What do you mean by Y2K problem of IT industry?
- vi) Name some of the important IT companies in India with their working environment.

### PART C

Answer any Three:

(1x5=5)

Q3.) Discuss about the life, invention and challenges of Charles Babbage?