13. If $n_{C_5} = n_{C_6}$ then find 13_{C_n}.

14. If $f : A \to B, g : B \to A$ and $f = \{(1,a),(2,c),(4,d),(3,b)\}$, $g = \{(a,2),(b,4),(c,1),(d,3)\}$ then show that $(gof)^{-1} - f^{-1}og^{-1}$.

PART III — (5 × 2 = 10 marks)

Answer ALL questions.

15. $A = \{2,4,7,8,11\}, B = \{3,5,7,11,6\}$ find $A \cap B$.

16. Find value of $\begin{bmatrix} 1 & 0 & -2 \\ 3 & -1 & 2 \\ 4 & 5 & 6 \end{bmatrix}$.

17. Two coins are tossed. What is the probability getting two heads.

18. Find $x^3 + y^3 + z^3 + 3xyz$, if $x = 2, y = -3, z = 1$.

19. If $n_{P_4} = 1680$ find n.

(1502)

B.C.A. DEGREE EXAMINATION, MARCH 2012.

(Regular)

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Part II

Paper I — MATHEMATICS – I

Time : Three hours Maximum : 100 marks

PART I — (4 × 15 = 60 marks)

Answer any FOUR questions, choosing atleast ONE question from each Section.

SECTION A

1. Simplify $\frac{2x+6}{x^2+5x+6} - \frac{12x-4}{3x^2+5x-2} + \frac{10x-50}{x^2-3x-10}$.

2. Show that $1^2 + 2^2 + 3^2 + \ldots + n^2 = \frac{n(n+1)(2n+1)}{6}$ by mathematical induction.

3. If A, B are two events in a sample space S, then prove that $P(A \cup B) = P(A) + P(B) - P(A \cap B)$.

SECTION B

4. If $A=\begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ then show that $A^3-6A^2+9A-41=0$.

5. (a) Show that the vectors $3i-2j-4k,-i+2k,-2i+j+3k$ are linearly dependent.

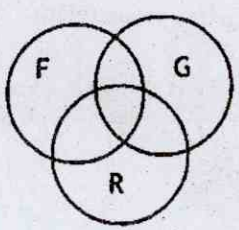
   (b) $\overline{a}=2i+4j-5k,\overline{b}=i+j+k$ find unit vector $\overline{a}+\overline{b}$ in opposite direction.

6. Consider following data for 120 mathematics students at a college concerns the languages French, German and Russian it was found that 65 study French, 45 study German, 42 study Russian, 20 study French and German, 25 study French and Russian, 15 study German and Russian and 8 study all languages than find.

   (a) Find number of students French and German but note Russian.

   (b) Find number of students study only French.

   (c) Fill all the correct in each of the eight regions of Venn diagram. Here F,G,R denote the set of students who study exactly one language.



PART II — (5 × 6 = 30 marks)

Answer any FIVE questions choosing atleast ONE from each Section.

SECTION C

7. A single card is drawn from pact of 52 cards find probability that

   (a) The card is a king.

   (b) The card is a heart.

8. If $f:R\to R$ is defined as $f(x)=1+x$ when $0\le x\le 2$, $f(x)=3-x$ when $2<x\le 3$ then find $f(0),f(1.6),f(2),f(2.5),f(2.8),f(3)$.

9. Explain AND gate.

10. If $x=2,y=-3$, find value of $\dfrac{x^3+3x^2y-2x^2y^3}{x^4+x^2y^2+y^3}$.

SECTION D

11. L be a bounded distributive lattice, prove that compliments are unique if they exists.

12. If $\overline{a}=2i-j+k,\overline{b}=i-3j-5k$. Find the vector $\overline{c}$ such that $\overline{a},\overline{b}$ and $\overline{c}$ are sides of a triangle.

(1503)

B.C.A. (Regular) DEGREE EXAMINATION,
MARCH 2012.

(Examination at the end of First Year)

Part II — SYSTEMS APPROACH TO MANAGEMENT

Time : Three hours Maximum : 100 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. (a) Specify the roles identified by Mintzberg.

(b) Specify the types of Plans.

(c) Differentiate between vertifiable and non vertifiable objectives.

(d) Write about dual career couples.

(e) Specify any four advantages of decentralization.

(f) Differentiate between programmed and non programmed decisions.

(g) Explain the structure and process of organizing.

(h) Explain the limitations of staff.

(i) Write the use of appraisal.

(j) Write about special motivational techniques.

SECTION B — (4 × 20 = 80 marks)

Answer ALL the following questions.

2. (a) Write about the systems approach to operational management.

(b) Explain the functions of managers.

Or

(c) Explain the social responsibility of managers.

(d) Explain the ethics in managing.

3. (a) Define organization. Explain organization levels and the span of management.

(b) Explain how organizing can be improved by maintaining flexibility and by making staff more effective.

Or

(c) Define staffing. Explain the systems approach to human resource management.

(d) Explain the situational factors affecting staffing.

4. (a) Explain the various models of the nature of people and their implications for managing.

(b) Write about the Communication process.

Or

(c) Define leadership. Specify the ingredients of leadership. Explain about leadership behavior and styles.

(d) Explain situational or contingency approaches to leadership.

5. (a) Explain about feed forward control.

(b) Explain the nature and applications of information technology.

Or

(c) Explain the operations research for planning controlling and improving productivity.

(d) Explain about direct and preventive controls.

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(1504)

B.C.A. DEGREE EXAMINATION, MARCH 2012.

(Regular)

(Examination at the end of First Year))

Part II — INTRODUCTION TO INFORMATION TECHNOLOGY

Time : Three hours Maximum : 100 marks

SECTION A

Answer ALL questions. (10 × 2 = 20)

1. (a) Define data. Specify types of data.

(b) Differentiate between RAM & ROM.

(c) Specify the organization of the book.

(d) Write the future enhancements of internet technology.

(e) Specify the classification of programming languages.

(f) Differentiate between Non-Text and Archiving databases.

(g) Write about SUM and COUNT computations using spread sheets.

(h) Specify the uses of Internet.

(i) Define WWW and specify its uses.

(j) Define protocol. Write about TCP/IP protocol.

SECTION – B

Answer ALL of the following Questions.

$(4 \times 20 = 80)$

2. (a) Draw the Block diagram of a computer and explain its parts in detail.

Or

(b) Explain about Interconnection of CPU with Memory and I/O units.

(c) Explain about Embedded Processor.

3. (a) Define network . Explain about Types of Networks.

(b) Write about naming computers connected to Internet.

Or

(c) Define operating system. Explain the uses of operating system. Types of os.

4. (a) Define database. Explain its structure.

(b) Write the steps for database design.

Or

(c) Define DBMS. Explain the components of DMBS.

5. (a) Explain about Information Browsing services and other facilities provided by Browsers.

Or

(b) Explain the societal Impacts of Information technology.

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(1505)

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MARCH 2012.

(Examination at the end of First Year)

Part II — PROGRAMMING USING C

Time : Three hours Maximum : 100 marks

SECTION A — ($10 \times 2 = 20$ marks)

1. Answer the following questions.

   (a) Define variable.

   (b) What are enumerated data types?

   (c) What is keyword?

   (d) Explain formatted output.

   (e) Write the syntax for switch.

   (f) What is two dimensional array?

   (g) What is the difference between while and do-while?

   (h) What is string?

   (i) Define structure.

   (j) Define union.

SECTION B — (4 × 20 = 80 marks)

Answer the following questions.

2. (a) Explain different features in C.

(b) Explain structure of C.

Or

(c) Define data type. Explain different data types in C language.

3. (a) What is operator? Explain different operators supported in C language.

Or

(b) Explain control statements in C language with syntax.

4. (a) What is function? Explain category of functions with example.

Or

(b) What is an array? How to create one dimensional array with syntax and example?

(c) Write a C program to search the element by using Binary Search.

5. (a) What is pointer? How to initialize pointer with syntax and example?

(b) Write a C program to swap two numbers using Pointers.

Or

(c) Define file. Explain different file handling functions in C".

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