



**Govt. Holkar (Autonomous) Science College, Indore [M.P.]**

**Department of Computer Science**

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**Semester-II**

**B.C.A.**

**2016-19**

**Academic Year Onwards**



**BCA PART II Semester – Scheme : 2016-19 and Onwards**

**Course of studies for the BCA – II Semester**

**BCA – II Sem Course**

**SCHEME OF MARKS**

Course	Theory Max. Marks		Practical Max. Marks	Max. Marks	Min. Marks
	Internal	External			
BCA-201 Mathematics – II	15	85	--	100	5 + 28
BCA-202 Statistics – II	15	85	--	100	5 + 28
BCA-203 Physics – II	15	85	--	100	5 + 28
BCA-204 Programming & Problem solving through C – II	15	85	--	100	5 + 28
BCA-205 Introduction to information system	15	85	--	100	5 + 28
BCA-206 Hindi	10	40	--	50	3 + 14
BCA-207 Programming & Problem solving through C – II Practical	--	---	50	50	17
BCA-208 PC Internet Practical	--	--	50	50	17
Total Marks	85	465	100	650	--



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### SEMESTER – II

### BCA – 201 MATHEMATICS – II

**Min. Marks: 28**

**Max. Marks: 85**

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#### **UNIT – I**

Curve tracing : Tracing curves with equations in Cartesian & polar forms.

Improper integrals : Convergence of improper integrals. Evaluation of convergent improper integrals.

#### **UNIT – II**

Gamma and Beta function and their properties, some important deductions (duplication formula)

Rectification L length curve, intrinsic equation.

#### **UNIT – III**

Multiple integrals : Integration of functions of two & three variables, Double & triple integrals, Dirichlet integral use double & triple integral in finding areas and volumes.

Vector integration : Indefinite and definite, surface and volume integrals, Gauss and Stokes theorems and some applications.

#### **UNIT – IV**

Partial differential : Function of several variables, Limits, Continuity and differentiability, Partial derivatives, Euler's Theorem, Mean Theorem & Taylor's Theorem.

#### **UNIT – V**

Maxima & Minima function of two and three variables. convergence and divergence of series : Definition and various tests.

#### **TEXT BOOK**

A text book of higher calculus for B.Sc II by Dr. H. S. Pathak & D.C. Agrawal .  
Shikha Sahitya Prakashan.

#### **REFERENCE BOOK**

A text book of higher calculus for B.Sc II by Dr. H. S. Sharma Ratan Prakashan.



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### SEMESTER – II

### BCA – 203 PHYSICS II

**Min. Marks: 28**

**Max. Marks: 85**

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#### UNIT – I

Basic Concepts of Electromagnetic wave propagation, properties of plane wave propagation, guided and unguided media, ionospheric propagation : Critical frequency, MUF, skip distance, drik propagation.

Electromagnetic wave: Transmission line, coaxial cable, reflection coefficient,

VSWR, Standing waves, impedance matching, wave guide, traveling waves and Maxwell's equations.

#### UNIT – II

Interference : principle of superposition, Interference of light, analytical treatment of interference, Theory of Interference fringes, Interference in thin films, wedge shaped film, Newton's rings and determination of wavelength, Michelson's interferometer and its uses.

#### UNIT – III

Diffraction : Two kinds of diffraction, Rectilinear Propagation of light, Zone plate, Diffraction at straight edge, Diffraction at single slit, plane diffraction grating, Resolving power of a grating, Dispersive power of a grating.

#### UNIT – IV

Polarization : Polarization of light waves, various types of light, double refraction, Nicol's prism, Huygen's theory of double refraction, Quarter and half wave plate, Production & analysis of different kind, Optical activity, fresnel's theory of optical rotation.

#### UNIT – V

Doppler effect of light & its applications.

Laser : concepts of coherence, spatial and temporal coherence, Spontaneous and stimulated emission, Population inversion, Ruby Laser, Gas Laser, Semiconductor Laser, Uses of Laser.

#### TEXT BOOK

Physics Part II : Resnick & Halliday. Wiley Publication.

#### REFERENCE BOOKS :

1. Engineering Physics : R.K. Gaur & S. L. Gupta, Dhanpat Rai Publication.



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### SEMESTER – II

#### BCA -204: PROBLEM SOLVING AND PROGRAMMING THROUGH C -II

Min. Marks: 28

Max. Marks: 85

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#### UNIT – I

Functions: definition, declaration, calling & use. Passing values b/w function, scope rule of function.

Advanced feature of functions: Function declaration & prototypes, call by value, call by reference, back to function calls, macro verses function, Recursion, need of recursion, types of recursion.

#### UNIT- II

Pointer: Definition & declaration, pointer assignment, pointer & arrays, passing entire array to function, pointers & 2D array, pointers array, pointer to array, array of pointer to string, Pointer to structures, use of pointer, malloc(), calloc() library function.

Union: Union definition & declaration, accessing a union member, union of structures, initialization of union member, uses of union, use of user defined data types

#### UNIT-III

Types of I/O, Console I/O function, Formatted console I/O function, sprintf(), sscanf() function, unformatted console I/O functions.

Disk I/O function: File opening modes, writing, closing files(fclose), a file copy program, using argc, argv, string I/O in files, formatted disk I/O function, text verses binary mode, record I/O in files, detecting error in reading & writing, I/O redirection in DOS.

#### UNIT-IV

Components of VDU: Display Adapters, Display Screens (monitor), Video Display modes, resolution

Text or Graphics: Color in text in modes, color in graphic mode, video pages, writing to VDU memory in text mode.

#### UNIT-V

Graphic programming: lines, stylish lines, drawing & filling images, patterns with differences, bar ()

Filling regular & non-regular shapes, of palettes & colors, outputting text, justifying text, a bit of animation, system metrics.

#### TEXT BOOK:

LET US 'C' by Y.Kanetkar(BPB)

#### REFERENCE BOOKS:

1. Programming in 'C' Balaguruswami
2. Programming & problem solving through 'C'.(Elsevier)
3. First course in Programming with 'C', T.Jeyapoovan(VIKAS)
4. The C programming Language by Brian W Kernigham and dennis M Ritchie
5. Practical C programming, 3rd edition (anetshell handbook )O'Reilly
6. Computer Programming and IT (for RTU) by Ashok N Kamthane et. al, Pearson Education, 2011



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### SEMESTER – II

### BCA-205 INTRODUCTION TO INFORMATION SYSTEM

**Min.Marks:28**

**Max.Marks: 85**

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#### **UNIT-I**

Information concept, system and modeling concept, meaning of information system, business information system, system development, need to learn information system, organization and information system, competitive advantage, performance based information system, careers in information system.

#### **UNIT-II**

H/W: components, processing and memory device, secondary storage, input and output devices  
S/W: overview of s/w, system and application s/w, programming language, s/w issues and trends

#### **UNIT-III**

Data management, data modeling and database models, database management system, database application system

#### **UNIT-IV**

Overview of communication system, telecommunication, N/W and distributed processing, telecommunication and application. Use of functioning of the internet, internet services, WWW, intranets and extranets, Net issues

#### **UNIT-V**

Introduction to E-commerce, types of Ecommerce, E-commerce application, electronic payment system, technologically infra-structure of E- commerce, trends to E- commerce, strategy for successive E-commerce Computer waste and mistakes, computer crimes, privacy issue, work environment

#### **TEXT BOOK:**

Principle of Information System: Ralph stair (Thomson course technology)



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### SEMESTER – II

#### BCA -207 PRACTICAL: PROGRAMMING & PROBLEM SOLVING THROUGH C -II

Min.Marks:17

Max. Marks: 50

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#### List of Practical's:

1. To find square root of nos. without using built in function
2. To find factorial of a no. using recursion
3. To reverse digit of number
4. To reverse the given string
5. To search a name in a record of student
6. To create a record having five fields
7. To exchange the value of two variable using function
8. To add two number using pointer
9. To create a file character
10. To read a file
11. To create a file of integer
12. To create file of a record
13. To copy a file
14. To merge two file
15. To find transpose of matrix
16. To find inverse of matrix
17. To convert lower case string into upper case
18. To read character from one text file convert into upper case and length into other file
19. Write a program which ask date of birth in dd/mm/yy format and spell it in word
20. To find out twins prime number
21. To enter a four digit number and print it in all combination
22. Write a mark sheet program using file
23. Write a payroll program using file
24. Partitioning of an array
25. Removal of duplicity in an array
26. Write the following recursive C Function
  - a. Factorial of a given number
  - b. Nth Fibonacci number
  - c. Reverse of a given String
  - d. Reverse of a give Number
  - e. Sin(x)
27. Write a c program to create a new data type Date with the help of structure and typedef. Also write following user defined function for date manipulation.
  - a. To return next Date,
  - b. To return next Month,
  - c. To return next Year,



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- d. To add few Days in a date
- e. To add few Months in a date
- f. To add few Years in a date
- g. To return the date of the week of a given date.
- h. To return Month name from the date.
- i. To Display the Date in various format as: Date Display(Date d1, char \*format)

Here Date is the newly created data type. The format string can hold the following values: "DDMMYYYY", "MMDDYY", "MON, DD, YYYY"

Write a C program to implement myprintf and myscanf functions using Concept of variable number of arguments. (using getch, putch, gets and puts function)

28. Write a C program that creates an Employee text file? Records Are empid, empname, designation, qualification, salary, experience, Research work, address, city phone?

29. Write a C program that manipulates the above text file. The program must implements the operation to modify a record, delete a record and append new records.

30. Write C programs for the following operation to work like DOS Commands:

- a. type abc.txt
- b. copy source1.txt source2.txt
- c. copy source1.txt source2.txt source3.txt source4.txt
- d. compare source1.txt source2.txt
- e. concat source1.txt source2.txt

31. Write a C program to open two files containing integers (in sorted order) and merge their contents.

32. Write a C program to count the number of vowels, consonants, digits, spaces, other symbols, words and lines in a given text file.

33. Write C code to check if an integer is a power of 2 or not

34. Write a C program to count bits set in an integer.

35. Write a C program to set a particular bit in a given number.

36. Write a C program to reset a particular bit in a given number.

37. IF  $5+3+2 = 151022$  ,  $9+2+4 = 183652$  ,  $8+6+3 = 482466$  ,  
 $5+4+5 = 202541$  THEN;  $7+2+5 = ?$  Develop a C program to solve this problem.





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### SEMESTER – II

### BCA-208: INTERNET PRACTICALS

**Min.Marks:17**

**Max. Marks: 50**

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#### **List of suggested Practical work**

1. Understanding of a dial up connection through modem.
2. Configuring a computer for e-mail and using outlook express or Netscape messenger.
3. Registering an e-mail address.
4. Understanding of address book maintenance for e-mail.
5. Understanding e-mail drafting.
6. Understanding of different mail program tools.
7. Send and receive function of e-mail.
8. Using the internet for search using search engines.
9. Understanding of sites like BSNL, Rediff, Indianinfo, Zeenext, AOL, Yahoo, Hotmail, mail city.
10. News services on Internet.
11. Downloading of tutorial from the internet from education sites.
12. Using Internet explorer.
13. Using Netscape navigator.
14. Using Netscape Communication suite.
15. Using front page or notepad etc for web design.