



Reg. No. :

Name :

First Semester B.C.A. Degree Examination, January 2014
Career Related First Degree Programme Under CBCSS
Group 2(b)
Core Course-CP 1141 : PROGRAMMING IN C
(2013 Admn.)

Time : 3 Hours

Max. Marks : 80

SECTION – A

(One word to maximum of one sentence. Answer all questions). (10×1=10 Marks)

1. The conversion specifier _____ is used to print integers in hexadecimal form.
2. An expression that combines two or more relational expressions is termed as _____ expression.
3. An array created using malloc function at run time is referred to as _____ array.
4. _____ refers to the region where a variable is actually available for use.
5. A pointer variable contains as its value the _____ of another variable.
6. A variable declared inside a function by default assumes _____ storage class.
7. The header file _____ is used in the program to include character functions.
8. The _____ operator is used with a pointer to de-reference the address contained in the pointer.
9. The only integer that can be assigned to a pointer variable is _____.
10. The function _____ is used to set the position to a desired point in the file.



SECTION – B

(Not to exceed one paragraph. Answer any eight questions. Each question carries two marks). (8x2=16 Marks)

11. What are C tokens ?
12. Explain the increment and decrement operators in C language.
13. Explain conditional operator with a suitable example.
14. Explain the Else.. If ladder with suitable example.
15. Explain for loop with an example.
16. Explain the use of function prototype.
17. How does a structure differ from an array ?
18. Describe the use of getc() function.
19. What is the significance of EOF ?
20. What is pointer ?
21. What is a structure ? Give example.
22. What is meant by recursion ?

SECTION – C

(Not to exceed 120 words. Answer any six questions. Each question carries four marks). (6x4=24 Marks)

23. Describe the two ways of passing parameters to functions. Explain with examples.
24. Differentiate between compiler and interpreter.
25. What are trigraph characters ? How they are useful ?
26. Discuss the different operations that can be performed using pointers.



27. Explain the difference between break and continue statement with examples.
28. Explain with example any three string-handling functions in C.
29. Explain the difference between a structure and a union with suitable examples.
30. What is pointer to an array ? Give example.
31. State the difference between malloc() and calloc().

SECTION – D

(Answer **any two** questions. **Each** question carries **15** marks). **(2×15=30 Marks)**

32. What do you mean by conditional statement ? Explain different types of conditional statements that C language support.
 33. Define an array and develop a C program to multiply two matrices.
 34. Write the features available in C language that can be used for string manipulation. Explain each feature with suitable example.
 35. Develop a C program that will create a data file containing the list of employees in the following format: emp_id integer, emp_name character(30) and designation character(30).
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Reg. No. :

Name :

First Semester B.B.A./B.Sc./B.C.A./B.Com. Degree Examination,
January 2014
Career Related First Degree Programme under CBCSS
Group 2(b)
Language Course – I
EN 1111.4 : LISTENING AND SPEAKING SKILLS
(2013 Admission)

Time : 3 Hours

Max. Marks : 80

I. Answer **all** questions, **each** in a word or a sentence.

- 1) Which among the following words has the sound /n/
'kindred', 'kongo', 'kingdom', 'kinked'.
- 2) Which among the following words – 'hood', 'book', 'hoof', 'honour', has a
/b/sound ?
- 3) How is the word 'entrepreneur' pronounced ?
- 4) How is the word 'museum' pronounced ?
- 5) How many syllables are there in the word 'traveller' ?
- 6) How many syllables are there in the word 'humidity' ?
- 7) Mark the stress in the following words.
'politics' ; 'politician'
- 8) Mark the stress in the following words.
'photograph' ; 'photographer'
- 9) Which sound is common to the following words ?
'few' ; 'phase' ; 'lieutenant' ; 'laugh'.
- 10) Which sound is common to the following words ?
'son' ; 'sun' ; 'blood' ; 'cousin'

(10×1=10 Marks)

P.T.O.



II. Answer **any eight, each** in a short paragraph **not** exceeding **50** words.

11) Divide any eight of the following words in to syllables.

'cigarette' ; 'relative' ; 'agriculture' ; 'cucumber' ; 'demonstrate' ; 'orange' ;
'girls' ; 'relativity' ; 'comforting' ; 'academy'.

12) Give the ortho graphical version of the following transcribed words

/ 'ɒnərəbəl / / ə'kɒmə'deɪʃn / / 'ædmə'eɪʃn / / æn'tɪsɪpeɪt / / 'brekfəst / / 'bʌtəflaɪ /
sɪlebrɪti / kəʊ'ɪnsɪdəns /

13) Transcribe the following words in phonetic script marking word stress.

'magazine' ; 'extra-ordinary' ; 'fishmonger' 'geography' 'lieutenant' ;
'negotiate', 'satisfy', 'measure'.

14) Mark the stress in the following sentences :

- a) If you study hard, you will pass in the examination.
- b) He came by bus.

15) Write the strong and weak forms of the following sentences.

- a) Can I go home now ?
- b) I could swim very fast when I was very young.

16) Mark intonation in the following questions :

- a) Is the door shut ?
- b) Did you say snake ?

17) Mark intonation in the following statements :

- a) I met him last night.
- b) The girl is nice.

18) Give the weak and strong forms of the following words :

at; for; from; of.

19) Identify the closing diphthongs and illustrate them in words :

/eɪ/ /iə/ /ʊə / /əʊ/ /aʊ/ /aɪ//ə/

20) List the long vowels in English and illustrate them in words.

21) Identify the voiced consonants from the following list.

/ tʃ / / ʒ / / ʃ / / w / / h / / j / / s / / r /

22) Identify the fricatives from the following list :

/ θ /

/ f / / v / / d / / ɡ / / ð

(8x2=16 Marks)

iii. Answer **any six each** in a paragraph **not** exceeding **100** words.

23) Write a note on effective listening.

24) Mark stress in the following sentences :

a) They started early for the station.

b) Why can't you be quiet for a while.

c) I don't want to talk to her.

d) Who has turned off the light ?

e) She cut her finger with knife.

f) This is the dress I like.

g) Ask him to write me a brief note.

h) Call me any time you like.

25) Put the intonation marks.

a) I went to the party.

b) The water is warm.

c) Why are you late ?

d) Where do you live ?

e) He is late because he missed the bus.

f) I bought books, pencils, papers and a pen.

g) We will go for a picnic.

h) You are ready for the test.

26) Write out a matrimonial advertisement for publication in a newspaper for a suitable match for your sister using the information given below :

Smart, beautiful, Christian girl – 25/5'6" – Convent educated – parents having business in Mumbai – preferably business background.



- 27) You were unable to attend your friend's wedding and could not inform him about it on time. You apologize to him when you meet him later.
- 28) Discuss the traffic congestion in your city with your friend.
- 29) You are meeting a singer in a party. Introduce yourself.
- 30) A television set you bought a week ago has developed a problem. You ring up and complain to the shopkeeper.
- 31) Your friend from Manipur is staying in the college hostel. Send him an invitation to celebrate Onam at your house. **(6×4=24 Marks)**

IV. Answer **any two each** in about **300** words.

- 32) Your friend Vishnu has just got admission in your college. He doesn't know the process of getting a bus-pass made for students. Explain to him the whole process and reproduce it in 200 words in your language.
 - 33) You are the Chairman of the College Union. Make a formal welcome address for the College Day celebration.
 - 34) You have witnessed a clash between a group of college students and the police, which finally ended up in the stoning of buses and shops and calling for a flash harthal. Write a report in 300 words.
 - 35) Write an imaginary group discussion (minimum of three participants) on use and abuse of mobile phones. **(2×15=30 Marks)**
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Reg. No. :

Name :

First Semester B.C.A. Degree Examination, January 2014
Career Related First Degree Programme under CBCSS
Group 2(b) : Complementary Course I
MM 1131.9 : MATHEMATICS – I

Time : 3 Hours

Max. Weightage : 30

All the first 16 questions are compulsory. They carry 4 weightage in all.

1. The value of $\cosh 0$ is
2. If the value of $\tanh x$ is $-\frac{7}{25}$, then the value of $\coth x$ is
3. If $y = \tanh x$, then the value of $\frac{dy}{dx}$ is
4. Verify Rolle's theorem for the function $f(x) = 2 + (x - 1)^{2/3}$ in $[0, 1]$.
5. General solution of the differential equation $\frac{dy}{dx} = \cos x$ is
6. A curve is defined by the condition that at each of its points (x, y) , its slope is equal to the square of the abscissa of the point. Express this in terms of a differential equation.
7. Solve the differential equation $y' = 1 + y^2$.
8. When we say that an integer is divisible by a non-zero integer ?
9. If $\gcd(a, b) = d$, then $\gcd\left(\frac{a}{d}, \frac{b}{d}\right) =$
10. State True/False : If $a|c$ and $b|c$ with $\gcd(a, b) = 1$, then $ab|c$.



11. Show that $\cos 4\theta = \cos^4\theta - 6\cos^2\theta \sin^2\theta + \sin^4\theta$.
12. Find the principal amplitude of the complex number $-1 + i\sqrt{3}$.
13. State True/False : If $z = r(\cos\theta + i\sin\theta)$, then $\frac{1}{z} = \frac{1}{r}[\cos\theta - i\sin\theta]$.
14. State Dirichlet's conditions.
15. Identify the objective function and constraints in the following optimization problem :

Maximize

$$z = 7x_1 - 4x_2$$

subject to the constraints

$$3x_1 + 2x_2 \leq 80$$

$$-2x_1 + 5x_2 \leq 180$$

$$x_1, x_2 \geq 0.$$

16. Express the following linear programming problem in the standard form :

Maximize

$$z = x_1 + x_2$$

subject to the constraints

$$x_1 + 2x_2 \leq 6$$

$$4x_1 + 3x_2 \leq 12$$

$$x_1, x_2 \geq 0.$$

Answer **any 8** questions from among the questions 17 to 28. They carry **1 weight each**.

17. Show that $(\cosh x + \sinh x)^n = \cosh nx + \sinh nx$, where n is any integer.

18. Verify the mean value theorem and find c for

$$f(x) = x(x-1)(x-2) \text{ for } a = 0, b = \frac{1}{2}.$$

19. Find the general solution of the differential equation

$$y'' + 2ky' + k^2y = 0.$$



20. Show that the function $u = e^x \cos y$ is a solution of the two dimensional Laplace

equation $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$.

21. Find $L^{-1}\left[\frac{a_1}{s} + \frac{a_2}{s^2} + \frac{a_3}{s^3}\right]$, where a_1, a_2 and a_3 are constants.

22. Find the g.c.d. of -8 and 36 and express it as a linear combination of two integers.

23. Show that 41 divides $2^{20} - 1$.

24. Calculate the value $\phi(1001)$, where ϕ is the Euler phi-function.

25. Separate into real and imaginary parts the expression $\tan(x + iy)$.

26. If $\sin(A + iB) = x + iy$, show that

$$\frac{x^2}{\sin^2 A} - \frac{y^2}{\cos^2 A} = 1$$

27. Find all basic solutions of $3x_1 + 2x_2 + x_3 = 20$ and $x_1 + 3x_2 + x_3 = 10$.

28. Find the Fourier series of f given by

$$f(x) = \begin{cases} -k, & \text{when } -\pi < x < 0 \\ k, & \text{when } 0 < x < \pi \end{cases} \text{ and } f(x + 2\pi) = f(x)$$

Answer **any 5** questions from among the questions **29** to **36**. They carry **2** weights **each**.

29. Find $\frac{dy}{dx}$, where $y = \sqrt{\frac{x^2 + x + 1}{x^2 - x + 1}}$.

30. If $y = \cos(m \sin^{-1} x)$, prove that

$$(1 - x^2)y_{n+2} - (2n + 1)xy_{n+1} + (m^2 - n^2)y_n = 0$$

31. Solve the differential equation $x^2 \frac{d^2 y}{dx^2} - 3x \frac{dy}{dx} + 4y = 0$.



32. Solve $xp + yq = 3z$, where $p = \frac{\partial z}{\partial x}$ and $q = \frac{\partial z}{\partial y}$.
33. Compute the remainder of 8^{103} when divided by 13.
34. a) State Wilson's theorem.
b) Prove that $5^{2n+2} - 24n - 25$ is divisible by 576.
35. Find all values of $(-8i)^{\frac{1}{3}}$.
36. Find the Fourier series for $f(x) = |x|$ in $[-\pi, \pi]$ with $f(x) = f(x + 2\pi) \forall x \in \mathbb{R}$.

Answer **any 2** questions from among the questions **37 to 39**. These questions carry **4** weights **each**.

37. An open box is to be made from a 16-inch by 30-inch piece of cardboard by cutting out squares of equal size from the four corners and bending up the sides. What size should the squares be to obtain a box with the largest volume?
38. a) If p is a prime, then prove that $a^p \equiv a \pmod{p}$ for any integer a .
b) Compute the remainder of 8^{103} when divided by 13.
39. Solve the following problem graphically :

Maximize

$$z = 6x_1 + 11x_2$$

Subject to the constraints

$$2x_1 + x_2 \leq 104$$

$$x_1 + 2x_2 \leq 76$$

$$x_1, x_2 \geq 0.$$



Reg. No. :

Name :

First Semester B.Sc. Degree Examination, December 2014
Career Related FDP under CBCSS
CS 1131/CP 1131 : DIGITAL ELECTRONICS
(2014 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Write short answer to the below **ten** questions in **one** or **two** sentence **each**.
(1×10=10 Marks)

1. What is a transistor ?
2. Name the passive electronic components.
3. Convert the decimal number $(9738)_{10}$ into its equivalent BCD format.
4. Find the 2's complement of $(101011)_2$.
5. Convert $5C7_{16}$ to decimal.
6. Write the truth table of XOR gate.
7. Define a decoder.
8. Define fan-in of a logic gate.
9. Which is the most popular and most widely used digital IC family ?
10. Which logic gate is a basic comparator ?

SECTION – B

Answer **any eight** questions **not** exceeding **one** paragraph each. **Each** question carries a mark of **2**.
(8×2=16 Marks)

11. Draw the V-I characteristics of a PN-Junction diode.
12. What is a monostable multivibrator ?



13. Convert $(40.25)_{10}$ to binary and hexadecimal number.
14. State Demorgan's law.
15. Draw the logic diagram of a half adder circuit.
16. Find the 1's complement and 2's complement of -18 .
17. Give the excitation table of T Flip flop.
18. What are the basic operations in Boolean algebra ?
19. What is a K-map ? What are its advantages ?
20. What is the basic difference between synchronous and asynchronous counters ?
21. What is a flipflop ?
22. Which logic family consumes maximum power and the least power ?

SECTION – C

Answer **any 6** questions **not** exceeding **120** words (Short essay). **(6×4=24 Marks)**

23. Explain how the process of Avalanche breakdown occurs in a PN junction diode.
24. Draw the logic diagram, give the characteristic equation and explain the JK flipflop.
25. Write notes on demultiplexers and encoders.
26. a) Convert $(010011110111.1101)_2$ to HEX
b) Solve $(11101000.11)_2 - (0110101.10)_2$ using 2's complement method.
27. Compare combinational and sequential circuits.
28. Minimize the following expression using K-map and realize with NAND gates
 $f(A, B, C, D) = \sum m(2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)$
29. Express the Boolean function $F = A + B/C$ in a sum of minterms.
30. Define the terms noise margin and power dissipation.
31. What are the merits and demerits of TTL ?



SECTION – D

Answer **any two** questions **not** exceeding **4** pages **each**. **(2×15=30 Marks)**

- 32. a) Draw the circuit diagram of a full wave rectifier and explain its working. **10**
b) How many types of multivibrators are there ? Name them. **5**

 - 33. a) Obtain the minimal SOP and POS expressions for the function **6**
 $F(A, B, C, D) = \Sigma (0, 1, 4, 5, 9, 11, 13, 15)$.
b) Add the following binary numbers $1010.11 + 1101.10 + 1001.11 + 1111.11$. **3**
c) Subtract $(10001.01)_2 - (1111.11)_2$ using 1's complement arithmetic. **3**
d) Write the truth table of NOR gate and draw the logic symbol. **3**

 - 34. a) Design a 4 bit magnitude comparator. **10**
b) Draw the logic diagram of a 1×4 DMUX and explain its working. **5**

 - 35. a) Design a mod-10 counter using JK flipflops. **10**
b) Multiply $(1101)_2 \times (101)_2$. **5**
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Reg. No. :

Name :

First Semester B.C.A. Degree Examination, December 2014
Career Related First Degree Programme under CBCSS
Group 2(b) : Complementary Course
CP 1132 : DIGITAL ELECTRONICS
(2013 Admn.)

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** questions. Answers to be limited from **one** word to maximum of **two** sentences. **All** questions carry 1 mark.

1. What is the property of capacitance ?
2. What is an oscillator ?
3. Give two uses of 555 timer IC.
4. Give ASCII code for decimal number 9.
5. Obtain 2's complement notation of decimal number 9.
6. Obtain binary and hexadecimal representation of decimal number 9.
7. Name two universal gates.
8. Name the logic family that consumes lowest power.
9. What is a decoder ?
10. Represent A and B in Venn diagram. (10×1=10 Marks)

PART – B

Answer **any 8** questions. Answers to limit in **one** paragraph maximum. **All** questions carry **2** marks **each**.

11. List 4 advantages of LEDs.
12. Draw the circuit of a half wave rectifier.

P.T.O.



13. What is mutual inductance ? Explain.
14. Write down the rules for binary addition.
15. What is a BCD code ? Give example.
16. Solve :
 - a) $110001_2 = X_{10}$
 - b) $65.535_{10} = X_{16}$
17. Express -127 in 2's complement form.
18. Draw the symbol of a two-input OR gate and write down its truth table.
19. Realize $A + B$ using NAND gates.
20. Write down commutative law for Boolean Algebra.
21. Multiply decimal numbers 5 and 7 after converting to binary form.
22. Explain any two parameters to compare logic families. (8x2=16)

PART – C

Answer **any 6** questions. Answers should not exceed **120** words. **All** questions carry **4** marks **each**.

23. Prove the following :
 - a) $B + BCD + B'CD + AB + A'B + B'C = B + C$
 - b) $CD'(D' + D'B) + (B' + D')(B'C + B'D) = CD' + B'C + B'D$
24. Explain the working of a JK flip flop.
25. Write down the truth table for a 2 - bit comparator. Give expression for equality condition.
26. Convert the following decimal numbers into hex :
 - a) 658.539
 - b) 8934.8



- 27. What is a decoder ? Explain any one decoder.
- 28. Write down the truth table for a full adder. Give expression for sum output.
- 29. Using 2's complement system subtract
 - a) 45 – 27
 - b) 19 – 38
- 30. What is a multivibrator ? How are they classified ? Discuss their uses.
- 31. Explain the working of a diode. **(6×4=24 Marks)**

PART – D

Answer **any two** questions. **Each** question carries **15** marks.

- 32. a) Write a note on Molecular Electronics. 5
 - b) Explain the operation of a shift register. 10
 - 33. a) Draw the schematic of a 2-input TTL NAND gate and explain its operation. 9
 - b) How can you improve the speed of operation of a TTL gate ? Explain. 6
 - 34. a) Explain the principle of oscillators. 5
 - b) The 555 to realize a monostable multivibrator. Explain its working with the help of relevant waveforms. 10
 - 35. Write notes on :
 - a) Alphanumeric codes. 5
 - b) 1's complement arithmetic. 5
 - c) Latches. 5
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7216

Reg. No. :

Name :

First Semester B.C.A. Degree Examination, December 2014
Career Related First Degree Programme Under CBCSS
Group 2 (b) : Core Course
CP 1141 : PROGRAMMING IN C
(2013 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

One word to maximum of one sentence. Answer all questions. (10×1= 10 Marks)

1. Every program statement in a C program must end with a _____.
2. The expression containing all the integer operands is called _____ expression.
3. The _____ operator returns the number of bytes the operand occupies.
4. In an exit-controlled loop, if the body is executed n times, the test condition is evaluated _____ times.
5. A for loop with the no test condition is known as _____ loop.
6. _____ is the process of arranging the elements of an array in order.
7. The parameters used in a function call are called _____.
8. A function that calls itself is known as a _____ function.
9. A _____ is a collection of data items under one name in which the items share the same storage.
10. The function _____ may be used to position a file at the beginning.



SECTION – B

Not to exceed one paragraph. Answer any eight questions. Each question carries two marks. (8×2 =16 Marks)

11. What is static variable ?
12. What is the difference between Identifiers and Key words ? Give examples.
13. What is size of operator ?
14. Explain if.. else statement with an example.
15. Explain do loop with an example.
16. What is meant by call-by-value ?
17. What is pointer ?
18. Describe the use of putc() function.
19. What is a structure ? Give example.
20. What is dynamic array ?
21. Explain the increment and decrement operators in C language.
22. Explain conditional operator with a suitable example.

SECTION – C

Not to exceed 120 words. Answer any six questions. Each question carries four marks. (6×4 =24 Marks)

23. Describe the structure of a C program.
24. Describe the four basic data types in C language. How could we extend the range of values they represent ?
25. Explain with example any three string-handling functions in C.
26. Explain the difference between a structure and a union with suitable examples.



27. What is pointer to an array ? Give example.
28. What are the arithmetic operations that can be applied on pointer variables ?
29. Explain the difference between entry controlled loop and exit controlled loops with suitable loop constructs and examples.
30. What are different types of initialization of an array ? Explain with examples.
31. Distinguish between `int main()` and `void main()`.

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks. **(2×15 =30 Marks)**

32. What do you mean by conditional statement ? Explain different types of conditional statements that C language support.
 33. Define an array and develop a C program to sort a list of names in ascending order.
 34. What is recursion ? Discuss its merits. Write a C program to find the factorial of a given number using recursion.
 35. Write a C program to check if the given string is a palindrome.
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