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N – 4306

Reg. No. :

Name :

**First Semester B.Sc./B.Com./B.B.A./B.C.A./B.S.W./B.M.S./B.Voc. Degree
Examination, June 2022**

Career Related First Degree Programme Under CBCSS

Language Course – English

EN 1111/EN 111/EN 1111.4 — LANGUAGE SKILLS

(2020 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

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

1. What does the word podcasting mean?
2. An anchor can also be called the _____.
3. What is skimming?
4. What is proof reading?
5. What is a vlog?
6. What is active listening?
7. Define plagiarism.
8. What is a Bio data?
9. A CV should have at least _____ references.
10. A CV should always be attached with a _____.

(10 × 1 = 10 Marks)

P.T.O.

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

11. Mention two barriers to reading.
12. What is a CV or Curriculum Vitae?
13. What is persuasive writing?
14. Suggest two ways to improve vocabulary
15. What are soft skills?
16. Why is developing soft skills important?
17. Importance of posture in non-verbal communication.
18. How can one adopt a confident posture all the time?
19. What is telephone etiquette? Mention any two.
20. What is netiquette?
21. What is mirroring?
22. Why is a strong vocabulary important?
23. What are some factors that adversely affect listening skills?
24. What is intonation?
25. Name the four types of reading.
26. What is copy editing?

(8 × 2 = 16 Marks)

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

27. Read the following passage and answer all the questions that follow

Dinosaurs were a species of huge reptiles which lived about sixty-five million years ago. The meaning of the word dinosaur is 'terrible lizard'. *Dino* means 'terrible' and *saur* means 'lizard'. There were thousands of different kinds of dinosaurs. Most of them were herbivores but some were ferocious carnivores. Dinosaur skulls had large holes that made their skulls lighter. Some of the largest skulls were as long as a car. They used different techniques for hunting. Some carnivorous dinosaurs used speed and agility to hunt their prey. Some used only their jaws to attack their prey. Meat-eating dinosaurs are known as theropods, which means 'beast-footed'. A massive meteorite hit the Yucatan Peninsula of Mexico 65.5 million years ago. It is believed to have led to the extinction of dinosaurs and seventy five percent of the plant and animal species. Dinosaur fossils have been discovered in several parts of the world. Scientists have studied them and discovered many facts about their body structure, hunting skills and other habits

- (a) What does the word *dinosaur* mean?
 - (b) Mention the hunting techniques used by dinosaurs.
 - (c) What made the skulls of the dinosaurs lighter?
 - (d) What is supposed to be the cause for the extinction of dinosaurs?
28. Prepare a script for an anchor who is hosting the annual day at college.
29. Prepare a speech on cyberbullying.
30. Prepare a speech on learning in the time of COVID 19.
31. Write a blog on environmental pollution.
32. Write a blog on any natural calamity.
33. Write an email to a book store enquiring about the availability and price of a few academic books.
34. Write an email to your cousin asking him or her to spend the summer vacation with you.

35. Write a script for a podcast on ecotourism in Kerala.
36. Edit the passage given below

Mangalyan is a satellite to Mars that is launched by the Indian Space Reform Organization (ISRO) on 5 November 2013. It arrives successfully at Mars on 24th September 2014. The satellite was launched to study the physical character and the atmosphere of the planet. India is the first country to successfully reach Mars on the very first attempt.

37. Edit the passage given below

Education is the most importance part of our life. In today's time, faculty like the internet are available in all the homes. Online education has been very effective in the time of Corona. The pandemic has severely effected education and education systems across the world. Educational institutions around the world were temporarily closed in an attempt to reduce the impact of Corona.

38. Write a report on the annual sports day conducted in college by the Physical education Department.

(6 × 4 = 24 Marks)

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

39. Write notes for the following passage (10-15 points)

Effective speaking depends on effective listening. It takes energy to concentrate on hearing and to concentrate on understanding what has been heard. Incompetent listeners fail in a number of ways. First, they may drift. Their attention drifts from what the speaker is saying. Second, they may counter. They find counter-arguments to whatever a speaker may be saying. Third, they compete. Then, they filter. They exclude from their understanding those parts of the message which do not readily fit with their own frame of reference. Finally, they react. They let personal feelings about a speaker or subject override the significance of the message which is being sent. What can a listener do to be more effective? The first key to effective listening is the art of concentration. If a listener positively wishes to concentrate on receiving a message his chances of success are high. It may need determination. Some speakers are difficult to follow, either because of voice problems or because of the form in which they send a message. There is then a particular need for the determination of a

listener to concentrate on what is being said. Concentration is helped by alertness. Mental alertness is helped by physical alertness. It is not simply physical fitness, but also positioning of the body, the limbs and the head. Some people also find it helpful to their concentration if they hold the head slightly to one side. One useful way for achieving this is intensive note-taking, by trying to capture the critical headings and sub-headings the speaker is referring to.

Note-taking has been recommended as an aid to the listener. It also helps the speaker. It gives him confidence when he sees that listeners are sufficiently interested to take notes; the patterns of eye-contact when the note-taker looks up can be very positive; and the speaker's timing is aided-he can see when a note-taker is writing hard and can then make effective use of pauses.

40. Write a note on the first day of your college.
41. Write notes for the following passage (10-15 points)

Flexibility and mobility are essential not only to reduce the risk of injuries but to generally feel better. Living a nine to five desk life can be demanding on health and wellness. Here is how you can keep the most common problems at bay. Even if you are not exercising you need to make sure that you maintain correct posture and sit at your desk in the right way. It is important that your chair is placed correctly and your legs are not left hanging. Proper alignment ensures that your neck and back are not strained. Exercises and abdominal crunches two to three times a week can strengthen the core. It will help take the pressure off your back and will make it easier to maintain good posture. Chairs with a back that support your upper back are preferable for those who work long hours in front of screens. Constant typing, writing reports, and answering e-mails can exert your wrists leading to long-term damage. The frequency of your use and how you position your wrists at your keyboard can be a reason. The telltale signs of exertion would be a tingling sensation or numbness. One should not ignore initial signs. Make sure that you rest your wrist at regular intervals. To relieve tension quickly fold your hands in a NAMASTE in front of your chest with elbows moving out and lower your hands till you feel a good stretch in your wrists. Also rotating your fists inside and outside provides much relief to strained wrists. Since those who work on desks spend a lot of time looking at a computer screen, they are at a risk of straining their eyes. This may also lead to dry eyes and fatigue. Poor eyesight is the result of continued and improper exposure to screens. Keeping the computer screen at an optimal distance helps a lot in minimising strain to eyes. The screen shouldn't be too close or too far. To ease eye strain use good lighting and make it a point to look at a distance away from your screen every twenty to thirty minutes.

42. Write a paragraph on any **two** of the following

(a) Importance of hard work

(b) Honesty is the best policy

(c) Your favourite food

43. Prepare a cover letter and CV for the post of an English teacher in a school in Delhi, in response to an advertisement that has appeared in a daily.

44. Write a telephone conversation between you and book store manager enquiring about the delayed shipment of a book you had ordered.

(2 × 15 = 30 Marks)

Reg. No. :

Name :

First Semester B.C.A. Degree Examination, June 2022
Career Related First Degree Programme under CBCSS
Mathematics

Complementary Course for Computer Applications

MM 1131.9 : MATHEMATICS – I

(2020 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – I

Answer **all** questions. Each question carries **one** mark.

1. Define hyperbolic cosine and find its derivative.
2. Find the value of $\sinh x$, given that $\operatorname{sech} x = \frac{3}{5}$ and $x > 0$.
3. State Rolle's theorem.
4. Determine the order and degree of the differential equation

$$x^3 y''' + 2e^x y'' = y^2.$$

5. Solve the ODE $y' = e^{-3x}$ by integration.
6. Obtain the first order differential equation associated with the primitive $y = \sin x$.
7. Give one dimensional heat equation of second order.
8. When n is a positive integer, $\mathcal{L}(t^n) = \text{—————}$.

9. State Wilson's theorem.

10. Find the conjugate of the complex number $\frac{-1+3i}{2-i}$.

(10 × 1 = 10 Marks)

SECTION – II

Answer any **eight** questions. Each question carries **2** marks.

11. If $|x| < 1$, prove that $\tanh^{-1} x = \frac{1}{2} \log \left(\frac{1+x}{1-x} \right)$.

12. Show that $\sinh 2x = 2 \sinh x \cosh x$.

13. Verify Rolle's theorem for the function $f(x) = (x+2)^3 (x-3)^2$ in the interval $[-2, 3]$.

14. Verify that $y = 4e^{-x} \sin 3x$ is a solution of the ODE $y'' + 2y' + 10y = 0$.

15. Solve the differential equation : $y^3 y' + x^3 = 0$.

16. Solve the differential equation : $y'' + 6y' + 9y = 0$.

17. Show that $u = e^x \cos y$ is a solution of the Laplace equation.

18. Find a solution $u(x, y)$ of the partial differential equation $u_{xx} - u = 0$.

19. Evaluate $\mathcal{L}(e^{at} \cos \omega t)$.

20. Find the Laplace transform of the function $(a - tb)^2$.

21. Evaluate $\mathcal{L}^{-1} \left[\frac{s+3}{s^2+16} \right]$.

22. Find the g.c.d. of 12378 and 3054 and then express as a linear combination of these integers.

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

24. If $\sin(A + iB) = x + iy$, prove that $x^2 \operatorname{cosec}^2 A - y^2 \sec^2 A = 1$.

25. Find the different values of $(1+i)^{1/3}$.

26. Write down the Euler's formulae for the Fourier series of 2π -periodic function.

(8 × 2 = 16 Marks)

SECTION – III

Answer any **six** questions. Each question carries **4** marks.

27. Find the derivative of $\cosh^{-1} x$.
28. Using logarithmic differentiation, find $\frac{dy}{dx}$, where $y = x^{\tan x} + (\sin x)\cos^x$.
29. Find the n^{th} derivative of $x \log x$.
30. Verify mean value theorem for the function $f(x) = x^2 + x$ in the interval $[-4, 6]$.
31. Find the absolute maximum and minimum values of the function $f(x) = 3x^4 - 2x^3 - 6x^2 + 6x + 1$ on the interval $[0, 2]$ and determine where these values occur.
32. Solve the initial value problem $xy' + y = 0$, $y(4) = 6$.
33. Solve the initial value problem
 $y'' + y' + 0.25y = 0$, $y(0) = 3.0$, $y'(0) = -3.5$.
34. Find the general solution of the partial differential equation $\frac{\partial^2 z}{\partial x^2} - 2\frac{\partial z}{\partial x} + \frac{\partial z}{\partial y} = 0$.
35. Evaluate $\mathcal{L}^{-1}\left[\frac{1}{(s-1)(s-2)}\right]$.
36. Compute $\phi(5040)$ where ϕ is the Euler's function.
37. Separate $\log(\alpha + i\beta)$ into real and imaginary parts.
38. Find the Fourier series expansion of $f(x)$ given by

$$f(x) = \begin{cases} k & \text{if } -\pi < x < 0 \\ -k & \text{if } 0 < x < \pi \end{cases}$$

and $f(x + 2\pi) = f(x)$.

(6 × 4 = 24 Marks)

SECTION – IV

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

39. (a) If $x^y = e^{x-y}$, prove that $\frac{dy}{dx} = \frac{\log x}{(1+\log x)^2}$. 6

(b) If $y = (\sin^{-1} x)^2$, show that $(1-x^2)y_{n+2} - (2n+1)xy_{n+1} - n^2y_n = 0$. 9

40. Solve the non-homogenous equation

$$y'' - 4y' + 3y = 10e^{-2x}$$

41. Show that $\mathcal{L}(\cos \omega t) = \frac{s}{s^2 + \omega^2}$ and $\mathcal{L}(\sin \omega t) = \frac{\omega}{s^2 + \omega^2}$.

42. (a) Prove that $53^{103} + 103^{53}$ is divisible by 39. 8

(b) Use Fermat's theorem to verify that 17 divides $11^{104} + 1$. 7

43. Find the Fourier series expansion of $f(x)$ given by $f(x) = x^2 - 1 < x < 1$ and $f(x+2) = f(x)$.

44. Use graphical method to solve the LPP :

Minimize $z = -x_1 + 2x_2$

Subject to the constraints

$$-x_1 + 3x_2 \leq 10$$

$$x_1 + x_2 \leq 6$$

$$x_1 - x_2 \leq 2$$

$$x_1, x_2 \geq 0$$

(2 × 15 = 30 Marks)

Reg. No. :

Name :

First Semester B.C.A. Degree Examination, June 2022

Career Related First Degree Programme Under CBCSS

Computer Applications

CP 1141 — C PROGRAMMING

(2021 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – I

(Very Short Answer Type)

(One word to maximum of one sentence, Answer all questions)

1. A program that translates high-level languages to machine language at once is usually called _____
2. The set of instructions and statements written by a programmer using a computer programming language is called _____ code.
3. _____ is the extension of the file in C after compilation.
4. _____ is the storage capacity of float data type.
5. Name the built-in function for finding the square root of a number.
6. The operator for logical AND in C is _____
7. A _____ definition tells the compiler where and how much storage to create for the variable.

8. _____ mode opens a text file for both reading and writing.
9. Strings are terminated by a null character _____
10. In C, array index starts at position _____

(10 × 1 = 10 Marks)

SECTION – II

(Short Answer)

(Not to exceed one paragraph. Answer any **eight** questions. Each question carries 2 marks)

11. Differentiate high level and low level programming languages.
12. What is an array?
13. What is the purpose of break statement?
14. How will you create infinite loops in C?
15. What is a header file? Give an example.
16. What is a pointer?
17. What are the functions to write to a text file?
18. What are integer literals?
19. What do you mean by reserved keywords?
20. What is the purpose of strcpy() and strcat()?
21. What is the use of goto statement?
22. Draw and explain the symbols used for process and decision making in flowcharting.
23. Differentiate actual parameters and formal parameters.

24. Which are the derived data types in C?
25. What is the purpose of the function `sprintf()`?
26. What do you mean by modular programming?

(8 × 2 = 16 Marks)

SECTION – III

(Short Essay)

(Not to exceed **120** words. Answer any **six** questions. Each question carries **4** marks)

27. Write an algorithm to check whether a number is prime.
28. Write a C program to reverse a number.
29. Explain for loop with an example.
30. Explain with an example, how will you access union members?
31. Using recursion, write a program to find factorial of a number.
32. How will you initialize one dimensional and two dimensional arrays in C?
33. Explain with an example call by reference in functions.
34. Explain command line arguments with an example.
35. Explain various modes for opening a file.
36. Explain the concept of local variables with an example.
37. Explain with an example the use of array of pointers.
38. Explain how to pass structures as function arguments.

(6 × 4 = 24 Marks)

SECTION – IV

(Long Essay)

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

39. Briefly explain various operators used in C with examples.
40. Design an algorithm and draw corresponding flowchart to find all the prime numbers between two given numbers 'm' and 'n', where $m, n > 0$.

41. Explain if statement, if else statement and nested if with syntax and examples.
42. Explain with an example, how will you create and access a structure in C.
43. Write a C program to find the product of 2 matrices.
44. With pointers, find the sum of all elements in an array.

(2 × 15 = 30 Marks)

(Pages : 4)

N – 4387

Reg. No. :

Name :

First Semester B.C.A. Degree Examination, June 2022
Career Related First Degree Programme Under CBCSS
Computer Applications
CP 1121 – COMPUTER FUNDAMENTALS AND ORGANIZATION
(2021 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A (Very Short answer type)

(One word to maximum of one sentence. Answer **all** questions)

1. What is a bus?
2. What is EEPROM?
3. What is cache memory?
4. Name two basic operations required in memory access.
5. What is a Program Counter (PC)?
6. List two phases of instruction processing.
7. What is a micro routine?
8. What is a serial port?

P.T.O.

9. Expand USB.
10. Expand SDRAM.

(10 × 1 = 10 Marks)

SECTION – B (Short answer)

(Not to exceed **one** paragraph, answer any **eight** questions. **Each** question carries **2** marks.

11. What is SMPS?
12. What is the function of CMOS?
13. What do you mean by motherboard?
14. What is system software? Give example
15. What is hit ratio?
16. What do you mean by pipelining?
17. What is an interrupt?
18. Explain clock cycle.
19. What are static memories?
20. What is memory latency?
21. What is a priority interrupt?
22. What do you mean by semi-conductor memory?
23. What do you mean by a fetch cycle?
24. What do you mean by arithmetic processor as a co-processor?

25. What do you mean by dynamic memory cell?
26. What is a micro programmed control unit?

(8 × 2 = 16 Marks)

SECTION – C (Short essay)

(Not to exceed **120** words, answer any **six** questions. Each question carries **4** marks)

27. Explain the basic computer operation cycle.
28. Explain the condition code flags.
29. Write short notes on control signals.
30. Explain the functions of an I/O interface.
31. Explain asynchronous transmission.
32. Write short notes on PROM, EPROM and EEPROM.
33. Explain virtual memory address translation with a diagram.
34. Explain polled interrupt.
35. Write short notes on mouse.
36. Explain the functions of BIOS.
37. What are the features of secondary memory?
38. Write notes on memory stick.

(6 × 4 = 24 Marks)

SECTION – D (Long essay)

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

39. Explain the functional units of a computer with a diagram.
40. Draw and explain the conceptual view of the hardware required in an ALU.

41. Explain micro programmed control unit organization.
42. Explain in detail various registers used in a computer.
43. With a neat diagram, explain the working of a magnetic disk.
44. Explain RISC architecture and its characteristics.

(2 × 15 = 30 Marks)

Reg. No. :

Name :

First Semester B.Sc./B.C.A. Degree Examination, June 2022

Career Related First Degree Programme under CBCSS

Computer Science / Computer Applications

CS 1132 / CP 1131 : DIGITAL ELECTRONICS

(2021 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A (Very short answer type)

One word to maximum of one sentence. Answer all questions.

1. ASCII stands for _____.
2. The base of Octal number system is _____.
3. A _____ is called Product of Sum.
4. The shift register PISO stands for _____.
5. The hexadecimal number $(1E.43)_{16}$ is equivalent to _____ octal number.
6. How many entries will be in the truth table of a 4-input NAND gate?
7. BCD stands for _____.
8. What is the result of binary subtraction of $101001 - 010110$?

9. In the toggle mode, a JK flip-flop has $J = \text{_____}$ and $K = \text{_____}$.
10. 2's complement of 1011011 is _____.

(10 × 1 = 10 Marks)

SECTION – B (Short Answer)

Not to exceed **one** paragraph, answer any **eight** questions. Each question carries **2** marks.

11. What is ripple factor?
12. Which are the different types of diode clippers?
13. What is the purpose of RC Phase shift oscillator?
14. Name the different types of number system.
15. Convert
- (a) 294_{10} to binary and
 - (b) 1010101_2 to octal.
16. Explain 1's complement with an example.
17. What is a logic gate? Name the basic logic gates.
18. What are the fundamental laws of Boolean algebra?
19. What is meant by Karnaugh Map?
20. What is a multiplexer?
21. What is the advantage of a look-ahead carry adder?
22. Differentiate synchronous and asynchronous counter.
23. What is a NOT gate?

24. What is XNOR gate?
25. What do you mean by a shift register?
26. What is hamming code?

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Not to exceed **120** words, answer any **six** questions. **Each** question carries **4** marks.

27. Explain PN junction diode.
28. Explain NPN transistor with its symbol.
29. How a transistor acts as an amplifier?
30. Explain Astable multivibrator.
31. Explain XOR gate with design and truth table.
32. Explain the concept of master slave JK flip flop.
33. Explain SISO and SIPO shift registers.
34. Explain the NAND gate with logic design and truth tables.
35. Explain decoders with block diagram and truth table.
36. Explain full adder with truth table.
37. Explain the concept of de-multiplexers.
38. Write notes on error detection codes.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

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

39. Explain the circuit diagram and working principle of half wave rectifier.
40. Explain universal gates with logic design and truth tables.
41. Explain in detail the SR flip-flop.
42. Explain the concept of addition and subtraction using 1's complement.
43. Using K-map, simplify the Product-of-Sums Boolean expression below, providing a result in POS form.

$$\text{Out} = (A + B + C + \bar{D})(A + B + \bar{C} + D)(A + \bar{B} + C + \bar{D})(A + \bar{B} + \bar{C} + D) \\ (\bar{A} + \bar{B} + \bar{C} + D)(\bar{A} + B + C + \bar{D})(\bar{A} + B + \bar{C} + D)$$

44. Explain 1-bit comparator and 2-bit comparator with its truth table and logic circuits.

(2 × 15 = 30 Marks)