12. Computer Science I Paper (CS.311), 2066

Time: 3 hour Pull Marks: 100

Group "A" (Introduction to computers)

I. Long Questions:

Attempt any TWO Questions.

2×10=20

- What are different Registers available is 8085 CPU? Explain the function of Program Counter and Stack Pointer registers in 8085 CPU.
- 1.2. Draw block diagram of SR Flip Flop with truth table. Explain the merits of D Flip over SR Flip Flop.

2. Problems :

2×5=10

 Simplify the following Boolean function using four variables K - map and draw the simplified function using gates.

 $F(A,B,C,D) = \sum_{i=0}^{\infty} (0,1,2,4,5,7,11,15)$

- Write an assembly language program in 8085 to add two hex number
 32H and 24H. Store the result in memory location 2004H.
- 3. Short Questions :

Attempt any TWO Questions.

10×3=30

- 3.1. Explain in brief about instruction cycle time, Machine Cycle time and T
- 3.2. Explain the function of 1/0 processor in I/O sub-system.
- 3.3. Draw 2 to 4 Decoder block diagram using gates.
- Explain the Seek time, Rotational Latency time and Transfer rate of storage devices.
- What are the different type of Network Technologies? Explain in brief about Token Ring protocol.
- 3.6. What are the main differences between RISC and CISC architecture?

129

- What is Dynamic and Static RAM? Which is faster and why? 3.7
- What is Multiprogramming? Explain method of doing the 3.8. Multiprogramming.
- What is 2's complement? Convert the binary number 10111011 in 2's. 3.9. complement form in step by step.
- 3.10. What is Network Reference Model and its purpose?

Long Ouestions:

Attempt any TWO Questions.

What is an Algorithm? Why is it important in program development? Explain different methods to represent an algorithm with suitable example.

Wat is an array? How does it differ from general variable? Explain single and multi dimensional array with syntax and suitable example. It is is it is

Problems:

- 5.1. Write a C program to calculate the factorial value of an integer n using
- Write a program in C language that takes string as input and prints the 5.2. reverse the given string 908 1 1 9000108 103 ug mg 3 1

Short Ouestions:

8×2.5=20

- What is flow chart? Write different symbols used to construct flow chart 6.1. and their meaning.
- 6.2. What are bitwise operators used in C ? What are the data types with which bitwise operators can be applied?
- 6.3. What do you mean by recursion? Write a recursive algorithm to add first 20 TO ann natural numbers. If the gold and the to manage social word.
 - What is a pointer? Write the basic rules of pointer albebra 6.4.
- What is a structure and why is it used? Write the syntal for declaring a 6.5 structure that contains a structure stood a A south and A learning
 - What is pre-processor? Write a nested macro using pre processor 5.6. directive that evaluates the cube of a number.
- 6.7. What are the propertives that C language is referred as one of the structured programming language?
 - 6.8. Explain different types of errors in programming.

OLD COURSE a said to brief about instruction eveletime, Machine C SERUO D. D. COURSE

Section "A"

1. Attempt any THREE Questions, rozasson (Al to not man) July 10-30

· Attental att TWD Guesilons. .

- 1.1. Define biogeochemical cycle. Explain nitrogen cycle with well labeled diagram. Mention its significance in environment.
- What is ecological succession? Discuss different process and regulations local of of community succession, watch to agree the affile and agree safety
 - 1.3. Describe the chemical and mineralogical composition of soil.
 - 1 Aunitables are the meleorological parameters that influence air pollution?

Section "B" additional a risk and tree thing (2)

2. Describe briefly any TEN Questions:

10×5=50

- Importance of biodiversity. And the description was not at Samuelli, the 21.
- Different types of positive interactions among living organisms in natural 2.2. (c) Hood agar is the enticited medium biotic community.

(a) Describe in helefale cochect of calaform word

To specificare incident ands.

Answer any FIV DOUGSTONS.

- Causes of the forest degradation and its consequences. 23
- 2.4. Statistical methods in chemical analysis.
- 2.5. Potentiometric titration. Sport and an applied and another another and another another and another another another another and another an
- 2.6. Biological control of pests.
- Effect of micro-organisms in food
- 2.8. Role of micro-organisms in wastewater treatment, balance a ward and
- Internal structure of the earth, has about an incoming the minimum and the contract of the carth, has about an incoming the carth, has a carth and a carth, has a carth and a 29
- 2.10. Weathering of rocks but ignore the same most year and the same a
- 2.11. Causes of earthquakes
- 2.12. El Nino and its effects. APEN ST. ATORP 30 STARTS OWN YOU FALL 181

Section "C"

3. Attempt ALL the Questions:

10×2=20

And A sudd backeria

Attempt ALL the questions.

Will be the representation

Differentiate between .

- Species richness and species evenness of the Unidosum adminor (a) 3.1.
- 3.2. Ecotype and ecocline
- Gross primary productivity and net primary productivity. 3.3.
- 3.4 Volumetric analysis and gravimetric analysis
- 3.5. Herbeides and insecticides
- 3.6. Actinomycetes and Cvanobacteria
- 3.7. Rocks and minerals to at mortal property of the state of the stat
- 3.8. Rill erosion and gully erosion.
- 3.9. Asian monsoon and Indian monsoon,
- 3.10. Cyclones and anticyclones. winte the block diagram of busic

OLD COURSE! Work does to notioned only a larger large to respond to

Attempt ALL the questions.

Comprehensive Questions

- What do you mean by bacterial recombination? Describe the process of conjugation in bacteria. A + COHA + COH + OHA + COHA + F
- Mention the importance of staining techniques in microbiology . Describe the 2. principle and procedure of gram staining.
- 3. What is the principle of sterilization? Describe the principle and procedure of control of microorganism by autoclaving. [4+10] .
- 4. Answer any FOUR Questions.

[4×4=16]

- (a) Mention the mechanism of mutation by irradiation.
- (b) How pyruvic acid is produced from glucose during bacterial metabolism?
- (c) Why capsulated bacteria are more virulent?

- (6) Describe in brief the method of coloform went in water by MPN method.
- (e) Point out Koch's postulates.
- 5. Justify the statement.

[4×4=16]

- (a) Plasmid is an extra chromosomal DNA.
 - (b) Rhizobium is used as biofertilizer
 - (c) Blood agar is the enriched medium
 - (d) Viruses are obligate parasites.

6. Answer any FOUR Questions.

[4×4=16]

- (a) Point out the difference between bacterial classification and nomenclature.
- (b) List any three protozoan parasites causing human disease and describe their medical importance.
- (c) Draw a labeled diagram of a virus structure.
- (d) Differentiate between exotoxin and endotoxin.
- (e) List any four medically important fungi and the diseae they produced.
- 7. Answer any FIVE Questions.

[5×2=10]

- (a) List any two genera of anaerobic bacteria.
- (b) Bacteriophage
- (c) Symbiosis
- (d) Lactic acid bacteria
- (e) Common microbial flora of fresh water environment.

Computer Science I Paper (CS.311), 2067

Bachelor Level /Science & Tech. / I Year Time: 3 hrs. Full Marks: 100

Attempt ALL the questions.

Section."A" (Introduction to computers)

Long questions:

[2x10=20]

- 1.1 Why computer networking is required? Differentiate between Bustopology and Star-topology with its merits and demerits.
- 1.2 What is microprocessor? Write the block diagram of basic microprocessor and explain the function of each block in brief. Explain the importance of Accumulator in Microprocessor with simple example
- 2. Problems:

[2x5=10]

2.1 Simplify the logic equation using K-map, $F = \overline{ABCD} + \overline{ABC} + \overline{BCD} + \overline{ABCD} + \overline{ACD} + \overline{BD}$

and write the logic diagram simplified logic equation.

- 2.2. Write a micro-program for 8085 microprocessor to subtract 4010 from 45₁₀ and multiply the total by 10₁₀. Store final result in memory location 2050_H
- 3. Short Quest as:

[10x3=30]

- 3.1. Explain the basic structure of static RAM.
- 3.2. With the 1 of truth table, explain operation of D flip flop made from NAND

- 3.3. Explain different types of Bus systems.
- 3.4. Differentiate between hardware control and micro programmed control.
- 3.5. Differentiate between serial 1/0 and parallel 1/0.
- 3.6. Explain different types of flags used in the basic microprocessor.
- 3.7. What do you mean by CPU scheduling?
- Differentiate between multiprocessing and multitasking in compiter system.
- 3.9. Discuss the merit and demerit of compiler over interpreter based translator.
- 3.10. Explain in brief about multi-media systems. Section "B" (Computer Programming)
- 4. Long questions:

[fix10=10]

Differentiate between iterative technique and recursive procedures. Write an algorithm for complete solution of quadratic equation.

OR

What do you mean by pointer? Explain the use of pointer with suitable program.

5. Problems:

[2x5=10]

- 5.1. Write a program in C to reverse any given string.
- 5.2. Write a program in C language to multiply two 3 by 3 matrices using function
- 6. Start Questions:

[8x2.5=20]

- 6. L. Differentiate between deterministic and undeterministic techniques.
 - 6.2. Explain in brief about search technique?
 - 6.3. Explain in brief about requirement analysis of the program development.
 - 6.4. Why C'libraries are required?
 - 6.5. What is a structure and why it is needed."
 - 6.6. What are the C pre-processors? Why they are required?
 - 6.7. Explain in brieff about bit-oriented instructions.
 - 6.8. Explain in brief about structure chart.

Computer Science I Paper (CS.311), 2068

Bachelor Level /Science & Tech. // I Year

Full Marks: 100

Time: 3 hrs.

Attempt ALL the questions.

Section "A" (Introduction to computers))

Long questions:

[Zx10=20]

- 1.11. What is computer Network? Why is it needed? Differentiate between Ring-topology and Star-topology with its merits and demerits.
- 1.2. What is microprocessor? What are different types of registers available in 8085?
- 2. Problems:

[[2x6=i0]]

2.1. Simplify the logic equation using K - map,

 $F = wx^y Z + wx^y + x^y Z + wx^y Z + wyZ$ and write the logic diagram of simplified logic equation.

2.2 Write a micro-program for 8085 microprocessor to add two numbers 16H and 20 Store final result in memory location 2001

What do you mean by CPU scheeled

Short Questions: 3

[10x3=30]

- 3.1. Write the difference between dynamic RAM and static RAM.
 - Explain the function of 1/0 processor in 1/0 sub-system.
 - 3.3. Draw 3 to 8 Decoder block diagram using gates.
 - Differentiate between hardware control and micro programmed control.
- 3.5. Differentiate between serial 1/0 and parallel 1/0. at biological to a
 - What are the main differences between RISC and CISC architecture? 3.6.
- 3.7. Explain different types of flags used in the basic microprocessor.
- 4 3.8. What is Multiprogramming? Explain different method of Multiprogramming. Additionally his nontribe protected not multi-sould
 - What is 2's complement? Convert the binary number 100 110 in 2's complement form in step by step.
 - 3.10. What is Network Reference Model and its purpose?

Section "B" (Computer Programming)

Long questions: 20 (12) via via octavor of 3 at managing a said (1/x10=10) 4.

What is an array? How does it differ from general variable? Explain single and multi dimensional array with syntax and suitable example.

OR

Differentiate between structured programming and non-structured programming. What are the components that makes C language as a structured language? The selection ment of the selection in the language?

Problems: 5.

[2x5=10]

- 5.1. Write a C program to calculate the factorial value of an integer n using recursion. The state of W. Schowenson of the Sale and Bull.
- Write a program in C language to multiply two 3 by 3 matrices using function. Exception and appears and manager branch

Short Questions: 6.

18×2.5=201

Attempt Als., the questini

- What is flow chart? Write different symbols used to construct flow chart.
- What are the components of a program? 6.2.
- What is pointer? Explain with suitable example. 6.3.
- Why C libraries are required? . 6.4.
- What is a structure and why it is needed? 6.5.
- Explain the importance of program documentation in program. 6.6.
- Explain in brief about bit-oriented instructions. 6.7.

What is the converged what are will great types of separationals

Differentiate between Structure and Unions in C language. 6.8.

Computer Science I Paper (CS.311), 2070

Bachelor Level /Science & Tech /I Year

Full Marks: 100 Time: 3 hrs.

Attempt ALL the questions.

Section "A" (Introduction to computers)

1. Long questions:

[2×10=20]

- 1.1 Why do we need computer Network? Discuss any three network topologies with their merits and demerits.
- 1.2 What is flip-flop? Discuss D flip-flop along with block diagram including logic gates and truth table. Explain the demerits of SR flip-flop over D flip-flop.

2. Problems:

[2x5=10]

2.1 Simplify the logic equation using K - map.

 $Y = \overrightarrow{ABCD} + \overrightarrow{ABC} + \overrightarrow{BCD} + \overrightarrow{ABCD} + \overrightarrow{ACD}$

and write the logic diagram for a simplified logic equation.

2.2 Write a microprogram for 8085 microprocessor to subtract 80₁₀ from 97₁₀ and multiply the total by 15₁₀. Store final result in the memory location 1030_H.

3. Short Questions:

[10×3=30]

- 3.1 Explain third generation of computers. What are the benefits of this generation over second generation.
- 3.2 Subtract 10111012 from 11000012.
- 3.3 What is RISC computer? Explain its merits over CISC computer.
- 3.4 What is software control? Explain.
- 3.5 Differentiate between static RAM and dynamic RAM.
- 3.6 What is network protocol?
- 3.7 Discuss the functions of operating system.
- 3.8 Differentiate between compilers and linkers.
- 3.9 What is assembly language?
- 3.10 What is multiprocessing? Differentiate it with multitasking.

Section "B" (Computer Programming)

4. Long questions:

[1×10=10]

What is cooping? Discuss for coop with suitable example. Write an algorithm to check whether a number is even or odd.

OR

What is array? Discuss different types of arrays. Differentiate array with structure.

5. Problems:

[2×5=10]

- 5.1 Write a program to find sum and average of 10 numbers.
- 5.2 Write a program to add two matrices.

6. Short Questions:

[8×2.5=20]

- 6.1 Discuss the importance of flow-chart.
- 6.2 What is structured programming?

- 6.3 What is if statement?
- 6.4 What is union?

Test - test

6.5 Differentiate between top-down and bottom-up design.

What is digerroof Theorem D. Hop-Rop along with block diseason or hating long cares and reals unless faculting long cares and reals unless faculting long and reals and reals and reals are constituted for the decrease of the constitute of the cons

- 6.6 Explain in brief about structure chart.
- 6.7 Discuss equality and logical operators.
- 6.8 Discuss about testing of module boundaries.

Problems

Long manestioner

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Simplify the logic equation using K - map Y = ARCD + ARC + RCD + ARCD + ARCD

and write the lagic diegram for a simplified logic equal of

2. Write a nacroprogram for 8083 incorpresses of constitues No., from 97., and inclinity the rotes by 15., store steel call in the memory called 4030,.

SHOrt Eugestrons:

- Espidin third generator of computer want are the benefits of measures.
 generating over solved generation.
 - 3.2 Submace (01410), from 1100001,
 - 3.3 What is R180 composer? Explain to income over C150, computer.
 - Et What is software control? Excisen
 - 3.6 Differentiate between taxes AAM on talking in these:
 - 3.6 What is network proceed.
 - 3.7 Discuss the functions of operating system.
 3.8 Differentiate between compilers and linkers.
 - Tousand lideroren a neft P.
 - 3.10. What is multiprocessing? Differentiate it with multitasking a ...
 Section "8" (Computer Programming)

Long queesti ons

What is convert Discussion ofton with subtains example. Write an argorithm to cheek subtains a minibar is called ordinary

What as army * Discuss different types of army s Differentiate army with

have a first programme to make the first contribution of the contr

22 Reflect programme and Leoner Johns.

1.1 Discuss the importance of flow-course

What is structured programming?