

2020**COMPUTER SCIENCE****[GENERAL]****Paper : I****[NEW SYLLABUS]**

Full Marks : 100

Time : 3 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***GROUP-A**

1. Answer any **six** questions: 1×6=6
- i) What is the disadvantage of interpreter?
 - ii) What is the difference between multitasking and multiprogramming?
 - iii) What is web server?
 - iv) What is timesharing?
 - v) What is the purpose of linker?
 - vi) What do you mean by system software?
 - vii) What is the purpose of http?
 - viii) What is web browser?

GROUP-B

2. Answer any **eleven** questions: 2×11=22
- i) What is the purpose of circular queue?
 - ii) What is the advantage of linked list over array?

[Turn over]

- iii) Why memory address is represented in hexadecimal form?
- iv) What is segmentation?
- v) What is write through and write back cache?
- vi) What do you mean by response time in CPU scheduling?
- vii) Why page size is always power of 2?
- viii) What is hit ratio and miss ratio?
- ix) What is segment table?
- x) What is dirty bit in page table?
- xi) Convert $(A3F4B7)_{16}$ to decimal.
- xii) What do you mean by thrashing?
- xiii) What is the TLB?

GROUP-C

3. Answer any **seven** questions: 6×7=42
- i) Describe Round Robin scheduling algorithm with the help of the following example and determine the average turned around time and waiting time. 6

Process	CPU Burst Time (ms)	Arrival time (ms)
P ₀	6	2
P ₁	1	3
P ₂	7	8
P ₃	3	1
P ₄	15	10

- ii) Why 8085 is known as 8 bit microprocessor? Describe different flags present in 8085 microprocessor. 2+4
- iii) Briefly discuss about different fields of IP datagram header 6
- iv) What is the difference between guided media and unguided media? Briefly discuss the characteristics of twisted pair cable. 2+4
- v) Convert the following infix expression into equivalent prefix expression using stack. Clearly mention each step.

$$((A+B/C)-D*C)/(E*F/G)$$
 6
- vi) Write an algorithm to check two binary trees are mirror image to each other or not? 6
- vii) Write an algorithm to represent a queue using two stacks. 6
- viii) Briefly discuss the different phases of instruction cycle. 6
- ix) What is interrupt? Briefly explain about different types interrupts. 6

GROUP-D

Answer any **three** questions: 10×3=30

- 4. i) Briefly explain fixed variable partition allocation scheme in the context of memory management. 6

- ii) What is fencing register? What is the roll in and roll out? 2+2
- 5. i) What is reflected code? 2
- ii) Solve the K-Map
 $F(W,X,Y,Z)=\pi (0,1,2,3,5,9,10,11,12,13,14,15)$ 6
- iii) What is the difference between minterm and maxterm of a Boolean expression? 2
- 6. i) Prove that a perfect binary tree of height h has $2^{h+1}-1$ nodes. 4
- ii) What is extended binary tree? 2
- iii) Draw the corresponding tree whose

Postorder Traversal:	D	B	G	E	H	I	F	C	A
Inorder Traversal:	D	B	A	E	G	C	H	F	I

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- 7. i) Write the advantage of Circular Queue over non circular queue. 2
- ii) Write a program to implement a circular queue using linked list. 8
- 8. Write short notes on (any **two**): 5×2=10
 - i) Instruction fotmats
 - ii) Virtual Memory
 - iii) Binary Tree and their operations