

IIITH PGEE CSE 2020

Aptitude

1. 2 Questions like given 4ltr and 3ltr beakers and you have to measure 2ltr in 4ltr beaker find minimum no of steps (only 3 operations allowed Fill, Empty, Transfer).

Same question given 5ltr & 8ltr beaker measure 4ltr in 8ltr beaker.

2. 80% South Indians like tea, 50% likes coffee, how many minimum likes both tea and coffee ?
3. A lady in 32 ft deep well. She climbs 4 ft at once but she slips 3 ft back, minimum steps she needs to come out of the well ?
4. A ball if dropped from some height then it will again jump 10% of the initial height. If we drop it from 45 ft, then how many jumps it will take (or maybe how much distance it covered) before coming to rest.
5. A man wants to plant trees in a square field, but he left with 10 trees, so he increased 1 step from each row, then he had to buy 13 more trees, how many trees did he planted ?
6. 44×31 in a base is 1031, Then 111 is equivalent to in decimal ? (I missed the exact numbers given).

7. S_1 & S_2 eats in 65 days
 S_1 & S_3 eats in 40 days
 S_2 & S_3 eats in ... days
 In how many days they all finish it ?

8. 12 Questions on conclusion based.

9. 5 Questions on comprehension.

10. 5 Questions on reasoning (Odd one out, next sequence etc).

Computer Science

1. Find wrong option

2^{32} Numbers are possible with 32 bits

2^{32} Numbers are possible with 32 bits

...

2. Two stations A,C connected with router B,

mtu of link AB = 1500B, BC = 450B

overhead is so and so

Then find how many packets will C receive for one packet sent from A.

3. Equation of SR FF.

4. Modified Peterson's algorithms.

5. Code for Critical Section.

6. Find correct one

Safe means no deadlock

Unsafe means deadlock

7. $G(V,E)$ MST of $G(V,E) = T$

V' subset of V

Create another MST from V'

(options are provided)

8. Floyd Warshell algorithm.

9.

10. 4 questions on precedence in C.

11. 1 Question based on pointer arithmetic.

12. Given linked list then it follows

Spatial Locality

Temporal Locality

Both

None

13. SQL query based on LIKE operator.

14. Which violets if having duplicate tuples ?

FD

Referential integrity

...

15. There are two processor P1 & P2 of different ISA

P1 = 2GHz and P2 = 1.5 which is faster ?

If P1 executes 1.2 million lines and P2 executes 1 million lines which is faster ?

16. Find correct one

Safe means no deadlock

Unsafe means deadlock

17. Which is correct ?

$2^{2n} = O(2^n)$

$\max(i,j) = \Theta(i+j)$

$1+1/n = \Theta(n)$

$N! = \Theta(n^n)$

18. Engine having 1-p probability of failing.

Plane could fly if at least 50% engines are working.

For which value of p 2 engines plans are preferred over 4 engines ?

19. Propositional logic

20.

i) There is a relation which is symmetric and antisymmetric.

ii) If it is not symmetric then it also not transitive.

...

21. Array of size $(2^n)-1$ $0 \leq i < (2^n)-1$

$A[i] \leq A[2i+1]$ and $A[i] \leq A[2i+2]$

Then k th smallest element could be found at

i) 2^k-1

ii) 2^k-1

iii) $k-1$ place

iv) Anywhere.

22. Graph represented by adjacency matrix.

Its connectivity could be found in matrix

i) A

ii) A^*

iii) A^{-1}

iv) A^T

23. A matrix is idempotent then its Eigen values will be ?

24. F is a function which takes integer and return Boolean of these then which of these

i) F is uncountable more than python programs.

ii) F is uncountable $<$ python programs.

iii) F is countable $>$ python programs.

...

25. Registers = 18

Operations = 16

Instruction OP R_1 R_2 R_d

OP = Operation

R_1, R_2, R_d = Registers

Then find minimum possible instruction length.

26. AVL tree minimum numbers of nodes of height h
27. Morse code have . & _
. is 1 bit long
_ is 2 bit long
How many codes possible with *** bits.
28. In 8 bit binary strings how many strings having 3 zeros ?
29. CISC is easy for
i) Processor designers
ii) Assembly language designer
iii) Compiler designers
...
30. There are 5 friend ABCDE and 3 subject chemistry biology history
E took history
B and D will take same subject
C will not take same subject as A.
How many combinations are possible ?
31. Which having less signal attenuation?
i) Single optical fibre cable
ii) Multicore fibre cable
iii) Twisted pair cable
iv) Coaxial cable
32. What if channel have noise ?
i) Loss of packets
ii) Amplifier distance to be decreased

...

33. 56 books are to be distributed among 10 standard students of class V and VI

Class V students takes 5 books

Class VI students takes 6 books

How many students of V and VI are there

34. 2PL having 2 phases ie growing and shrinking

What if we use both phases for each variables ie

Grow <Variable> Shrink then

i) Deadlock

ii) Difficulty in || Processing

iii) Wrong output

...

35. How many lines possible if **three** points are not collinear ?

36. Which is true ?

i) Logical memory equals to physical memory

ii) Logical memory \geq Physical Memory

...

37. $\#(x,y) = x(x+y)$

Then find $\#(\#(2,0),1)$

38. DFS on strongly connected graph

39. Belady anomaly on FIFO & asked about optimal PRA

40. Double hashing==No primary & secondary clustering

41. How many packets are sent in establishing connection.

42. Given class A ip 15.0.0.0

You want to create some subnets, each of size 400 hosts

Then how many such subnets are possible ?

43. Physical data independence means ?

For a human being it is almost impossible to retain all data exactly.

Still then I tried my best to recover those all.

Some numerical might have incorrect data but the language is same.