1. S --> AB|AS
   A --> a|aA
   B --> b

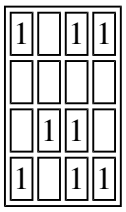
What is the grammer accepted by the above?

Ans. aa*b

2. How many address lines are needed to address a 64Kb segment with each register storing upto 512 bytes.

Ans. 14 address lines

3. Find the expression representing the following K-map



4. For the POS form of the expression given below

$\bar{X}.Y.\bar{Z} + X.\bar{Y}.Z + X.(Y + Z)$

5. In a computer system the ROM :

(a) contains boot software
(b) is permanent
(c) Both of the above
(d) None of the above

Ans. (c)

6. The binary equivalent of 3B7F is

Ans. 0011 1011 0111 1111

7. The register used by the shift reduce passing method is

Ans. Stack

8. A microprogram can be defines as to consist of

Ans. A primitive operation

9. Find the output for the following C program

```
int array[4][4] = {1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16};
for (i=2;i<0;i--)
 for(j=2;j<=0;j--)
   printf("%d", arr[i][j]);
```

10. Find the output for the following C program

```
#include<stdio.h>
void main()
{int i,x,sum=0;
int arr[6]=[1,2,3,4,5,6]
for (i=0;i<4;i++)
sum+ = func(arr[i]);
printf("%d", sum);
}

func(int x)
{ int val,x;
val = 2;
return(x+ val++);
}
```

11. Given the following data:

- Process P1 takes 2 seconds
- Process P2 takes 3 seconds
- Process P3 takes 4 seconds
- Process P4 takes 1 second
- Process P5 takes 6 seconds

Find the average time in case of shortest job first (SJF) scheduling.

12. Given a string STOCK and a stack of size 4.
Which of the following strings cannot be generated using this stack.

(a) TSOCK
(b) TOSKC
(c) STOCK
(d) TKOSC
(e) None of these

13. Inversion of a matrix will take which of the following time complexities?

(a) O(n)
(b) O(n^2)
(c) O(log n)
(d) O(n^3)
(e) None of these

14. A drum rotates at 4000 rpm. What is its average access time.

15. What range of integral values can be stored using 32 bits?

16. Where are the following variables stored

- Automatic
- Global
- Static

17. If a layer 4 transfers data at the rate of 3000 bytes/sec.
What will be the size of data block transferred by Layer 2

18. What is the greatest disadvantage of dynamic RAM over static RAM

Ans. High Power and need to refresh every 2 ms.

19. What happens when the CPU gets interrupted?

20. Find the Postfix of the following string

(a + b) * ((-d) *f (ab - cd))

21. E --> E + E| E * E | E/E | E - E| .... then which is correct

(a) It is ambigous
(b) It is inherently ambigous
(c) It is non inherently ambigous
(d) None of the above

22. If there are n nodes and K edges in a graph then what is the order of traversing

Ans. O(n^2)

23. A graph is represented as an adjacency list with n vertices and e edges
What is its time complexity

Ans. O(n + e)

24. An array with address KV[a] had n elements. Which of the following correctly addresses the ith element of the array.

(a) KV(a) - 2a + 2i
(b) KV(a) +2i
(c) KV(a) - 2a
(d) None of these

25. Give an example of a primitive instruction in microprocessors.

26. A computer has 8 bit data bus and 16 bit address line.
How many machine cycles will it take to store the contents to a memory location?

27. Where is a variable defined in a function stores?

Ans. Process Swappable Area

28. For the following C programlm

```
int d=0;
 for(int i=0;i<31;i++)
  for(int j=0;j<31;j++)
   for(int k=0;k<31;k++)
   if (((i+j+k) % 3)==0)
  d=d+1;
```

Find value of d

29. e=<e+e> | <e*e> | <(e)> | <id>
What forms do the expressions created by the above definition fit in

Ans. All arithematic expressions

30. If a set of numbers are in sorted order then which of the following sorting method is best

Ans. Bubble Sort

31. A magnetic tape is similar to which of the following structures

Ans. List

32. The s/n id 3 dB Find the capacity of the line.