1. Write a program to calculate the volume of a cylinder using FUNCTION......END FUNCTION. [Hint: \[\pi R^2H\] 
\[\text{Ans:}\]

\[
\text{DECLARE FUNCTION VOL}(R,H)\\
\text{CLS}\\
\text{CONST PI}=3.14\\
\text{INPUT “Enter radius and height”; } R, H\\
\text{PRINT “The volume=”; VOL(R,H)}\\
\text{END}\\
\text{FUNCTION VOL}(R,H)\\
V=\pi R^2H\\
\text{VOL}=V\\
\text{END FUNCTION}
\]

2. Write a program to test whether the given number is positive or negative using \text{SUB......END \text{SUB}.}

\[\text{Ans:}\]
\[
\text{DECLARE SUBTEST}(N)\\
\text{CLS}
\]
INPUT “Enter a number”; N
CALL TEST(N)
END

SUB TEST(N)
IF N>0 THEN
PRINT N; “is positive number”
ELSE
PRINT N; “is negative number”
END IF
END SUB

3. Write a program to print the following series: 1,4,7,…… up to 10th term using FUNCTION......END FUNCTION.

ANS :

DECLARE FUNCTION SERIES
CLS
D= SERIES
END
FUNCTION SERIES
FOR I = 1 TO 10
PRINT A;
A=A+3
NEXT I
END FUNCTION

4. Write a program which accepts any three different numbers and find the maximum number among them using CALL statement.

Ans:

DECLARE SUB MAX(A,B,C)
CLS
INPUT “Enter any three number’; A,B,C
CALL MAX(A,B,C)
END
SUB MAX(A,B,C)
IF A>B AND A>C THEN
PRINT A; “is maximum number”
ELSEIF B>A AND B>C THEN
PRINT B; “is maximum number”
ELSE
PRINT C; “is maximum number”
END IF
END SUB
5. Write a program to display greater number among any two numbers using FUNCTION....... END FUNCTION.

ANS :

```
DECLARE FUNCTION GREAT(A,B)
CLS
INPUT “Enter any two number”; A,B
PRINT “The greater number is”; GREAT(A,B)
END
FUNCTION GREAT(A,B)
IF A>B THEN
  GREAT= A
ELSE
  GREAT=B
END IF
END FUNCTION
```

6. Write a program to print the following series: 1, 8, 27, 64, ....... up to 10th terms using SUB procedure

Ans:
DECLARE SUB SERIES()
CLS
CALL SERIES
END
SUB SERIES
FOR I = 1 TO 10
PRINT I^3;
NEXT I
END SUB

7. Write a program to find the factorial number of any non-negative number using FUNCTION...... END FUNCTION.

Ans:

DECLARE FUNCTION FACT(N)
CLS
INPUT “Enter a non-negative number”; N
PRINT “The factorial of given number is”; FACT(N)
END
FUNCTION FACT(N)
F=1
FOR I =1 TO N
F=F*I
8. Write a program to display the series 55555, 5555, 555, 55, 5 using SUB………END SUB.

Ans:

DECLARE SUB SERIES()
CLS
CALL SERIES
END
SUB SERIES
A#= 55555
FOR I = 1 TO 5
PRINT A#;
A#=A#\10
NEXT I
END SUB

9. Write a program to display vowels and consonants of the entered string by using FUNCTION ......... END FUNCTION.

Ans:
DECLARE FUNCTION VOW(S$)
DECLARE FUNCTION CON(S$)
CLS
INPUT “Enter a word”; S$
VO= VOW(S$)
CO= CON(S$)
END
FUNCTION VOW(S$)
PRINT “The vowels are”
FOR I = 1 TO LEN(S$)
B$=MID$(S$,I,1)
C$=UCASE$(B$)
IF C$= “A” OR C$= “E” OR C$= “I” OR C$= “O” OR C$=“U” THEN PRINT B$
NEXT I
END FUNCTION
FUNCTION CON(S$)
PRINT “The consonant are”
FOR I = 1 TO LEN(S$)
B$=MID$(S$,I,1)
C$= UCASE$(B$)
IF C$<> “A” AND C$<> “E” AND C$<> “I” AND C$<> “O” AND C$<> “U” THEN PRINT B$
NEXT I
END FUNCTION
10. Write a program to display the reverse of the entered number by using SUB..... END SUB.

**Ans:**

```
DECLARE SUB REV(N)
CLS
INPUT “Enter a number”; N
CALL REV(N)
END REV(N)
SUB REV(N)
S=0
WHILE N<>0
R=N MOD 10
S=S*10+R
N=N\10
WEND
PRINT “The reversed form=”;S
END SUB
```

11. Write a program to declare a user defined function to return a given number in reverse order by using FUNCTION...... END FUNCTION.

**Ans:**

```
DECLARE FUNCTION REV(N)
```
CLS
INPUT “Enter a number”; N
PRINT “The reverse form is”; REV(N)
END
FUNCTION REV(N)
S=0
WHILE N<>0
R=N MOD 10
S=S*10+R
N=N\10
WEND
REV=S
END FUNCTION

12 Write a program to declare a SUB procedure module to generate multiplication table of any non-negative number, where number is passed as a parameter by using SUB..... END SUB statement.

Ans:
DECLARE SUB MUL(N)
CLS
INPUT “Enter a number”; N
CALL MUL(N)
END
SUB MUL(N)
FOR I = 1 TO 10
PRINT N; "*"; I; " = "; N*I
NEXT I
END SUB

13. Write a program to define a function procedure to display area of sphere where user has to input the required data in the main module. [Hint: Area of sphere: 4*PI*R^2]

Ans:

DECLARE FUNCTION AREA(R)
CLS
CONST PI = 3.14
INPUT "Enter radius"; R
PRINT "The area of sphere = "; AREA(R)
END
FUNCTION AREA(R)
A = 4*PI*R^2
AREA = A
END FUNCTION

14. Write a program to define SUB procedure to display the following series of number: 1, 1, 2, 3, 5, .... up to 13th term.
Ans:

DECLARE SUB SERIES()
CLS
CALL SERIES
END
SUB SERIES
A=1
B=1
PRINT A;B;
FOR I =1 TO 11
C=A+B
PRINT C;
A=A+B
B=A+B
NEXT I
END SUB

15. Using user defined function, write a program to input monthly income in parameter then computer annual tax to be paid. The tax rate is 15% if annual income is above Rs. 200000, otherwise tax rate is 1%.

Ans:

DECLARE FUNCTION TAX(I)
CLS
INPUT “Enter monthly income”; I
PRINT “Tax to be paid=”; TAX(I)
END
FUNCTION TAX(I)
A=I*12
IF A>200000 THEN
TAX=15/100*A
ELSE
TAX=1/100*A
END IF
END FUNCTION

16. Write a program to generate the series using SUB ...... END SUB : -10, -8, -6, -4, ........ Up to 20th term.
Ans:

DECLARE SUB SERIES()
CLS
CALL SERIES
END
SUB SERIES
A=-10
FOR I = 1 TO 20
PRINT A;
A=A+2
NEXT I
END SUB

17. Write a program using FUNCTION....END FUNCTION to calculate and print the total surface area of a sphere.

Ans:

DECLARE FUNCTION TSA(R)
CLS
CONST PI=3.14
INPUT “Enter radius”; R
PRINT “The total surface area of sphere=”; TSA(R)
END
FUNCTION TSA(R)
T= 4*PI*R^2
TSA=T
END FUNCTION

18. Write a program to declare Sub procedure to print only the vowels from a given word.

Ans:
DECLARE SUB VOW(S$)
CLS
INPUT “Enter a word”; S$
CALL VOW(S$)
END

SUB VOW(S$)
PRINT “The vowels are”
FOR I = 1 TO LEN(S$)
B$=MID$(S$,I,1)
C$=UCASE$(B$)
IF C$= “A” OR C$= “E” OR C$= “I” OR C$= “O” OR C$=“U” THEN PRINT B$
NEXT I
END SUB

19. Write a program that asks any number and calculates its factors using a SUB procedure.

Ans:

DECLARE SUB FACT(N)
CLS
INPUT “Enter a number”; N
CALL FACT(N)
20. Write a program that asks any three numbers and displays the difference between the greatest and the smallest value among the 3 supplied numbers using FUNCTION procedure.

Ans:

DECLARE FUNCTION DIF(A,B,C)
CLS
INPUT “Enter three numbers”; A, B, C
PRINT “THE DIFFERENCE=”; DIF(A, B, C)
END
FUNCTION DIF(A,B,C)
G = 0
S = 0
IF A > B AND A > B THEN
G = A
ELSEIF B > A AND B > C THEN
  G = B
ELSE
  G = C
END IF
IF A < B AND A < C THEN
  S = A
ELSEIF B < A AND B < C THEN
  S = B
ELSE
  S = C
END IF
DIF = G - S
END FUNCTION