



Answer all the following Questions

**Question (1) ILOs: b4, b5**

**(10 Marks)**

Write a BASIC program in order to compute the Perimeter (المحيط) of a polygon (مضلع). The user would enter the number of sides, N, and pair of coordinates  $(x_1, y_1)$  and  $(x_2, y_2)$ ,  $(x_1, y_2)$  and  $(x_2, y_3)$ , ... and so on of its vertices (احداثيات رؤوسه). Note that the perimeter = side1 + side2 + side3 + side4 + ... + sideN, side1 =  $\sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$ , side2 =  $\sqrt{(x_3-x_2)^2 + (y_3-y_2)^2}$ , and so on.

Note that: sideN =  $\sqrt{(x_N-x_1)^2 + (y_N-y_1)^2}$

**Question (2) ILOs: a1**

**(10 Marks)**

Write a BASIC program in order to compute the definite integral of  $f(x) = 3x^2$  along interval  $[a, b] = [0, 10]$  applying Simpson's Rule for definite integral. The interval must be divided into even number of strips (شرائح), N, (the width of each strip =  $h = \frac{b-a}{N}$ ). The Simpson's formula is given

$$\text{by: } \int_a^b f(x) dx = \frac{h}{3} \{f(a) + 4f(a+h) + 2f(a+2h) + 4f(a+3h) + 2f(a+4h) + \dots + 4f(b-3h) + 2f(b-2h) + 4f(b-h) + f(b)\}.$$

**Question (3) ILOs: a1**

**(10 Marks)**

Write exactly what you should see on the screen when each of the following BASIC program is executed accordingly:

أكتب ما سوف تراه على الشاشة بالضبط عند تنفيذ البرنامج الآتى:

a) 10 K=2  
 20 FOR I=3 TO 8 STEP 2  
 30 K=K+I  
 40 NEXT I  
 50 K=K\*2  
 60 PRINT "Ka)=";K

b) 10 K=2  
 20 FOR I=3 TO 8 STEP 2  
 30 K=K+I  
 40 IF K>5 THEN 60  
 50 NEXT I  
 60 K=K\*2:PRINT "Kb)=";K

c) 10 K=2  
 20 FOR I=3 TO 8 STEP K  
 30 K=K+I  
 40 NEXT I  
 50 K=K\*2  
 60 PRINT "Kc)=";K



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d) 10 DD=0
    15 E=0
    20 READ N
    25 WHILE K<=N
    30 K=K+1
    40 READ X
    50 IF X MOD 2=1 THEN DD=DD+1 ELSE E=E+1
    55 REM
    60 WEND
    70 DATA 7,10,11,5,7,8,3,9
    80 PRINT "Odds=";DD,"EVENS=";E
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**Question(4) ILOs: a1**

**(10 Marks)**

Try to detect 10 Errors (syntax or in the logic of the program accompanied by reasons) among the following BASIC program which has been written in order to compute the sum of

number of terms, N, of the series:  $1 - \frac{x^2}{2^2} + \frac{x^4}{2^2 * 4^2} - \frac{x^6}{2^2 * 4^2 * 6^2} + \dots$

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110 CLEAN SCREEN: This program computes the sum of N terms series:
120 Y=1-X^2/2^2+X^4/(2^2*4^2)-X^6/(2^2*4^2*6^2)+..+ Up to term number N
90 LOCATE (5,7)
130 READ "value of x",x," and number of terms";N
135 I =V: 1=X1
80 FOR IS = 2 TO NS
    X1 = (X1 * (X) ^ 2) / (2 * V) ^ 2
    Z = Z + X1 * (-1) ^ V
    V + 1=V
NEXT IS
1 + Z =Y
ENTER "value of series ="; Y: Would you like to use another number of terms?(Y/N)
IF Y THEN 90 ELSE END
225 FINISH
240 DATA 0.1 ; 9 ; 1 ; 2 ; 3
```

**Question (5) ILOs: a1**

**(10 Marks)**

Draw a suitable flowchart then rewrite the same program of question number 4, in its correct form.

**Question (6) ILOs: a1**

**(10 Marks)**

Please write only the number of each separate statement, (5-1), (5-2), (5-3), ..., (5-20) accompanied by one word ( "correct" or "wrong") followed by reason(s); only if it is wrong: أكتب فقط رقم الجملة وبجوارها القرار (صحيحة، أو خطأ) مع ذكر الأسباب في حالة الخطأ فقط ولا تقترح الجملة الصحيحة.

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(5-1) PRINT (X+Y)/N
(5-2) INPUT "Enter THE name";NAMES
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(5-3) 40 GOTO 40  
(5-4) M=90:GOTO M  
(5-5) ON DS GOTO 230,120,500  
(5-6) LOCATE (7,20):PRINT "The sum of odd numbers=";SUM  
(5-7) IF ANSWERS=YES THEN BEEP AND STOP  
(5-8) PRINT TAB(20);A;TAB(5);B;TAB(4);A^B  
(5-9) DATA "11 JAN 1997";MONDAY,"2-nd Year"  
(5-10) WHILE B<C AND F+3<C THEN 512  
(5-11) X-Y=Z  
(5-12) M=3Y-AB+3^X  
(5-13) READ "Enter the value of y";Y  
(5-14) INPUT "PRINT the value of b";B  
(5-15) ENTER "Three numbers";A,B,C  
(5-16) INPUT "Enter your name, Please";ADELS  
(5-17) FOR A>=1 TO 20 , 3  
(5-18) IF STAD<20 ORIF STAD >100 THEN PRINT "TRUE" ELSE PRINT" FALSE"  
(5-19) WHILE MS="YES"  
(5-20) ON KS GOTO (30,A,B,90)

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N.B.: Draw suitable flowchart before writing any new BASIC program.

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**GOOD LUCK**

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