اسم الطالب:	الرقم الجامعي :	اسم الاستاذ:

King Saud University
College Of Engineering
Department Of Chemical Engineering

GE 209 Computer Programming
2ed Semester 1428/1429 H
Time Allowed: 1:15 Hours

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Midterm EXIMANATION

Question#	Mark
1	
2	
3	
Total	

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QUESTION (1)

Draw CIRCLE around the right answer:

(i)

```
REAL:: A,B
A=37.555
B=5.2813
PRINT 10, A, B
10 FORMAT (1X,2E15.7)
STOP
END
```

The right print out is:

(a)␣0.3755500E+02␣0.5281300E+01
(b)␣␣0.3755500E+02␣␣0.5281300E+01
(c)␣0.3755500E+02␣␣0.5281300E+01
(d)␣␣0.3755500E+02␣0.5281300E+01

$$X = \left(\log\left|e^{-X}\right|\right) * \left(\log\left|\frac{1.0}{\sqrt{\cos y}}\right|\right)$$

The correct Fortran expression is:

(a) X=(log(abs(exp(-X))))*(log(abs(1.0/sqrt(cos(y)))))
(b) X=(log(abs(exp(-X))))*(log(abs(1.0/sqrt(cos(y)))))
(c) X=(log(abs(exp(-X))))*(log(abs(1.0/skrt(cos(y)))))
(d) X=(log(abs(exp(-X))))*(log(abs(1.0/sqrt(cos(y)))))

(ii)

GIVEN	LOGICAL EXPRESSION	OUTCOME
Logical Flag Real:: A, B Parameter (A=16.0, B=5.0) Flag=A.GT.B	A+B.LE.20.0.OR.Flag.EQV..False.	(a)True (b)False
Logical Flag Real:: A, B Parameter (A=16.0, B=5.0) Flag=Sqrt(A).LE.B	B**2.LE.16.0.OR.Flag.NEQV..True.	(a)True (b)False

(iii)

```
N=0
DO M=5,7
N=N+(-1)**M
END DO
PRINT 10, N
10 FORMAT(1X,'N=',I2)
STOP
END
```

The right print out is:

(a) N=1
(b) N=-1
(c) N=0
(d) Syntax Error

```
SUM=0.0
N=1
10 SUM=SUM+N
N=N+1
IF(N.EQ.2) SUM=3
IF(N.LT.3) GOTO 10
PRINT *, N, SUM
STOP
END
```

The right print out is:

(a) 3 3.000000
(b) 3 4.000000
(c) 3 5.000000
(d) Syntax Error

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QUESTION (2)

Trace this program showing all results and printed outputs.

```
IMPLICIT NONE

 LOGICAL:: DIS
 INTEGER::M=7
 REAL, PARAMETER:: B=5.
 REAL ::Y,S,Z

 DO Y=1,13,6
       S=Y+M/2
       DIS= B .GE. S
       IF (DIS .EQV. .True.) THEN
              Z=B-M
             PRINT *, Y, Z
       ELSE
             IF ( Y+M .LE. 19. .OR. B .GE. 20.) THEN
                    Z=MIN(Y,B)
                    PRINT *,Y,Z
             ELSE
                    PRINT *, 'Invalid Y'
                    STOP
             ENDIF
             PRINT *, Z
       ENDIF
 ENDDO
 PRINT*,Y,Z
 END
```

DIS	M	B	Y	S	Z

Print out

QUESTION (3)

The cost per kilometer for a rented car is

0.5 SR/km for the first 100 Kilometer,
0.3 SR/km for the next 200 Kilometer, and
0.2 SR/km for all kilometers in excess of 300 km.

(For example, the cost for the case 150 km is (100*0.5+(150-100)*0.3), for 480 km is (100*0.5+ 200*0.3+(480-300)*0.2), and so on)

Write a FORTRAN program:

(a) Reads the kilometers traveled
(b) Determines the total cost using (if-else-if statement.
(c) Determines the average cost per km.