Name:..   Univ. ID#:.

Q1) (10 points) Write a MATLAB program that asks the user to enter a value of x, then calculates

$f(x) = \dfrac{x^2 \cos(2x+1)}{6x \log x}$ if x >0 , then displays the result using fixed point notation with 6 decimal places, for x ≤

0 display an error message and end the program.

(10 points)

Q2) The sign of the value of three trigonometric functions (sine, cosine, Tangent) can be determined as follows:

   a. If the angle is in the first quadrant, all three are positive.
   b. If the angle is in the second quadrant only the sine of the angle is positive
   c. If the angle is in third quadrant only the tangent is positive
   d. If the angle is in the fourth quadrant only the cosine is positive.

Write a MATLAb program that asks the user to enter the value of the angle in degrees and then tests that angle according to the above cases to decide which values of the three trigonometric functions are positive.

Q3) (5 points) a. True or False

(T) (F) Code of Ethics is the act of starting a new venture to Produce or exploit a new idea.

(T) F   Electrical Engineering is the study of how the interaction of electrons with matter can be exploited for useful application.

(T) (F) Technicians build prototypes of new devices and perform periodic maintenance.

T (F) Computer Scientists work on designing and building the Computer hardware

(T) F   Engineers need to have a good technical background only.

b. (5 points) Match engineering specializations with the statement that best describes their work

K.. Robotics

a.. Image processing

i.. Wireless Communications

f.. Nuclear

a.. Aerospace

d.. Biomedical

a. Design of flying machines Aero Space

b. Design antennas, radars and microwave communication systems

c. Design the best way to make a product

d. Use engineering principles to design medical diagnostic Biomedical equipment

e. Design the infrastructure of cities

f. Help in the design of fusion reactors Nuclear

g. Design of special effects in movies Image Processing

h. Design of optical sensors

i. Design of extremely small electronic devices

j. Design of power distribution systems

k. Very important in industry to perform repetitive tasks quickly and accurately Robotics

l. Design sending and receiving equipment to disseminate cell phone signals wireless communication

m. Design the production system for medicines

(10 points)

Q4) given that ix = 3A, and the 18 V supplies a current of 8A, find RA and vx