ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD.
(Department of Mathematics and Statistics)

WARNING
1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENT(S) BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: **Understanding of Mathematics Statistics & Computer (359)**
Semester: Autumn, 2013   Level: F. A/F. Sc
Total Marks: 100   Pass Marks: 40

Assignment No. 1
(Unit 1–5)
Note: Attempt all questions and each question carries equal marks.

Question # 01   (10, 10)
(a) The ratio of miles driven to gallons of gas used was 55 to 4. How far was it possible to drive on a 20 gal tank of gas?
(b) Find the surface area and volume of a foot ball whose radius is 20cm.

Question # 02   (10, 10)
(a) The area of a trapezoid is 15 sq. meters. The altitude is $\frac{1}{3}$ of the lower base and the lower base is 8 meters longer than the upper base. Write down the statement in equation form for the problem and determine the length of lower and upper base.
(b) The perimeter of a rectangle is 90cm. The length is 20cm greater than the width. Find the length and the width.

Question # 03   (10, 10)
(a) Find the median, mode and mean of the following marks. 28, 34, 18, 24, 26, 30, 35, 33.
(b) A cone has the height of $5\ meters$ and the radius of the cone is $2\ meters$. Find the volume and surface area of the cone.

Question # 04   (10, 10)
(a) A die is rolled. What is the probability that a "zero" will occur?

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(b)   Consider a cube. Let the length of its each edge be $x\,meters,$ so the volume of the cube is x^3. Let the increase in volume be $98\,m^3$ when the edge is increased by $3\,meters$. Find the original length of each side of the cube?

Question # 05   (10, 10)
(a)   A chemist has one solution that is 70% acid (and the rest is water) and another solution that is 50% acid. What needed is 300 liters of solution that is 60% acid. The chemist will prepare it by mixing two solutions on hand. How much of each should be used?
(b)   Marks of a student in different subjects are as follows: 25, 35, 45, 27, 50, 30, 13, 57, and 33. Find the variance and standard deviation of the data.

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Assignment No. 2
(Unit 5–9)

Note: Attempt all questions and each question carries equal marks.

Question # 01   (10, 10)
(a)   The following data shows number of absent students during the month of October for statistics class.
3,5,7,4,6,0,1,4,3,2,8,5,4,7,1,5,2,6,7,8,3,9,1,0,5,6.
Form a frequency distribution by taking one as class interval.
(b)   What is Statistics? Differentiate between population and sample with examples.

Question # 02   (10, 10)
(a)   3 coins are tossed, calculate the following probabilities:
      (i)   P(3 heads)
      (ii)   P(2 heads and 1 tail)
      (iii)   P(3 tails)
(b)   Write a note on Pascal's triangle and discuss how one can use Pascal's triangle to find the probability of getting 2 heads, 1head and 1 tail. When two coins are tossed simultaneously.

Question # 03   (10, 10)
(a)   Write a brief note on computer designing and explain briefly how CAD is preferred over manual drawing?
(b)   Discuss the contribution of computers in the development of science and technology.

Question # 04   (10, 10)
(a)   Describe how the hardware components of a computer work together? And how the computer components link together?
(b)   Write a note on the output devices of computer?

Question # 05   (10, 10)

(a)   Give applications of computer in different fields of life.

(b)   What is artificial intelligence and explain briefly what an expert system is?

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