[LA0512] **Sub. Code: 4012**

M.Sc (MEDICAL PHYSICS) DEGREE EXAMINATION- MAY 2012

FIRST YEAR

PAPER II – RADIOLOGICAL MATHEMATICS

Q.P. Code: 284012

Time: Three hours **Maximum: 100 marks**

180(Min)

Answer ALL questions in the same order.

I. Elaborate on:

	Pages (Max)	Time (Max)	Marks (Max)
			(2 X 20=40)

1. a) Calculate Karl Pearson correlation coefficient for the following data (15 + 5 =20 marks)

Age	30	32	35	38	42	44	45	51	55	65
Blood urea	25	30	44	34	38	32	30	44	40	45

b) Discuss the assumptions of Karl Pearson correlation method?

2. a) A bag contains 10 Aspirin 5 Paracetamol 3 Analgin and 2 Crocin tablets. One tablet is drawn at random. Find the probability that the tablet drawn is Aspirin or Analgin or Crocin.

b) Discuss continuous probability distributions and discrete probability distributions. (10 +10 =20 marks)

II. Write notes on:

1. Discuss measures of central tendency.	4	10	6
2. Prepare the decay chart for cobalt-60 teletherapy isotope for the period of one half- life.	4	10	6
3. Define: i) law of large numbers ii) Central limit theorem.	4	10	6
4. A manufacturer of television sets knows that of an average 5% of his product is defective. He sales television in consignment of 100 and guarantees that not more than 4 sets will be defective. What is the probability that a television set will fail to meet the guaranteed quality?	4	10	6

5. Calculate Mean, standard deviation for the following 10 Diastolic blood pressure data: 90 100 88 102 70 66 78 82 84 86.	4	10	6
6. What are the properties of t-distribution?	4	10	6
7. Define i) Minimum detectable activity			
ii) uncertainty in the counting rate.	4	10	6
8. Discuss binomial distribution.	4	10	6
9. Define signal to noise ratio.	4	10	6
10. Discuss Euler's method and modified Euler's method.	4	10	6

****