SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)

B.Tech. Information Technology
Question Bank

Course Outcomes:
CO1 - Apply the concept of probability in random variables. (K3)

CO2 - Apply the basic rules of continuous random variables. (K3)

CO3 - Understand the basic concepts of Statistics. (K2)

CO4 - Derive the inference for various problems using testing of hypothesis in large samples (K3)

CO5 - Solve the problems related to testing of hypothesis in small samples (K3)

Knowledge Level: K1-Remember, K2-Understand, K3-Apply, K4-Analyze & K5-Evaluate.

	UNIT I	B. L
	PART A	
Q.1	State Forgetfulness property for Geometric distribution.	K1
Q.2	Define Probability function for Binomial distribution.	K1
Q.3	Define a discrete random variable with an example.	K1
Q.4	State the Properties of cdf F(x).	K1
Q.5	Prove that the sum of two independent Poisson variates is a Poisson variate.	K1
Q.6	The mean and variance of a Binomial distributed are 4 and $\frac{4}{3}$ respectively. Find $P(X \geq 1)$ If $n = 6$	K2
Q.7	If X is a Poisson variate such that $E\left(X^2\right) = 6$ find $E\left(X\right)$.	K2
Q.8	Find the MGF for binomial distribution	K2
Q.9	Derive Poisson Distribution As A Limiting Case of Binomial Distribution:	K3
Q.10	Eight coins are tossed simultaneously. What is the probability of getting atmost 2 heads?	K3
Q.11	If the probability of success on each trail is 0.25, after how many trials can we expect first success?	K3
Q.12	Write down the probability mass function of the Poisson distribution which is approximately equivalent to $B(100, 0.02)$	K3
Q.13	An experiment succeeds twice as often as it fails. Find the chance that in the next 4 trials, there shall be atleast one success.	K3
Q.14	If the probability that a person will believe a rumor is 0.75, find the probability that the 8^{th} person to hear the rumor will be the 5^{th} person to believe it.	K3
Q.15	If the probability that a target is destroyed on any one shot is 0.5, then find the probability that it would be destroyed on sixth attempt.	K3
	PART B	
Q.1	If the probability of the applicant passing the road test for driving license is 0.8. find the probability that the applicant finally pass the road test on the fourth trial.	K2

Q.2	A machine manufacturing screws is known to produce 5% defective. In a random sample of 15 screws, what is the probability that there are (i) exactly 3 defectives (ii) Not more than 3 defectives?	K2
Q.3	a) The number of monthly breakdown of a computer is random variable having a poisson distribution with mean equal to 1.8. Find the probability that this computer will function for a month i) Without a breakdown ii) With only one breakdown and iii) With atleast one breakdown b) The Number of monthly break down of a computer is a RV having a Poisson distribution with mean 1.8. Find the probability that this computer will function for a month with only one breakdown	K2
Q.4	Out of 2000 families with 4 children each, Find how many family would you expect to have i) at least one boy ii) 2 boys iii) 1 or 2 girls iv) no girls.	K3
Q.5	State the reproductive (or additive) property of independent Poisson r.v.s . Hence find the probability of 5 or more telephone calls arriving in 9 minute period in a hospital reception counter, if the telephone calls that are received at the rate of 2 every 3 minutes follow a Poisson distribution'	K3
	PART C	
Q.1	Find the moment generating function of Poisson distribution. Hence find its mean and variance.	K2
Q.2	Find the moment generating function of binomial distribution and hence find its mean and variance.	K2
Q.3	A Random variable x has the following probability distribution X 0 1 2 3 4 5 6 7 P(X) 0 k 2k 2k 3k k^2 $2k^2$ $7k^2+k$ (i) Find the value of k (ii) Evaluate $P(X<6)$, $P(X\geq 6)$ *and* $P(0<X<5)$ (iii) Determine the distribution function of X (iv) Find $P(1.5<X<4.5/X>2)$ and (v) What is the smallest value of n for which $P(X\leq n)>\frac{1}{2}$ (vi) Find $E(3X-4)$, $Var(3X-4)$	K2
Q.4	The Probability function of an infinite series is given by $P(X=x)=\frac{1}{2^j}$, $j=1,2,3,....$ (i) Verify that P(X) is really a probability mass function. (ii) Find Mean and Variance (iii) P[X is even] (iv) P[X $\geq$ 5] P[X is divisible by 5]	K3
Q.5	An iregular 6-faced dice is such that the probability that it gives 3 even numbers in 5 throws is twice the probability that it gives 2 even numbers in 5 throws.	K3

	How many sets of exactly 5 trails can be expected to give no even number out of 2500 sets?	

	UNIT II	B. L
	PART A	
Q.1	Define probability law of Gamma distribution and Write down any two characteristics of Gamma distribution	K1
Q.2	Define Gaussian distribution and write the properties of Normal distribution	K1
Q.3	Define a continuous Random variable with an example.	K1
Q.4	Test whether $f(x)=\begin{cases}\lvert x\rvert, & -1\le x\le 1\\ 0, & \textit{otherwise}\end{cases}$ can be the probability density function of a continuous random variable?	K2
Q.5	A continuous R.V follows the probability law $f(x)=Ax^2,\ 0\le x\le 1$ Determine A and the probability that X lies 0.2 & 0.5.	K2
Q.6	Check whether $f(x)=\frac{1}{\pi}\frac{1}{1+x^2}, -\infty<x<\infty$ is a probability density function.	K2
Q.7	If X is a Poisson variate such that 2 P(X =2) = P(X=1) find P(X = 0)	K2
Q.8	A continuous Random variable X has PDF $f(x)=\{kx^4,\ -1\le x\le 0$, then find the value of k	K2
Q.9	Find distribution function of the random variable X which has probability density function $f(x)=\begin{cases}6x^2(1-x) & 0<x<1\\ 0, & \textit{Otherwise}\end{cases}$	K3
Q.10	Derive MGF, Mean and variance of Gamma distribution.	K3
Q.11	The length of time (in minutes) that a certain lady speaks on the telephone is a random variable specified by the p.d.f $f(x)=Ae^{-x/5}, x>0.$ Evaluate A. Find the probability that the number of minutes she talks on the phone is (i) more than 10 minutes (ii) less than 5 minutes (iii) Between 5 and 10 minutes.	K3
Q.12	The life time of a component measured in hours is Weibull distribution with parameter α = 0.2 and β = 0.5. Find the mean life time of the component.	K3
Q.13	Establish the memoryless property of Exponential Distribution. And define (a) Reliability (b) Hazard function.	K3
Q.14	Suppose the life of 2 batteries in an automobile is exponentially distributed with parameter $\lambda=0.01$ days. What is the probability that the battery will last more than 1200 days which has already served for 1000 days?	K3

Q.15	Suppose the length of life of an appliance has an exponential distribution with mean 10 years. What is the probability that the average life time of a random sample of the appliances is atleast 10.5 years?	K3
	PART B	
Q.1	The CDF of a continuous Random variable X is *given* by $F(x)=\begin{cases}0, & x<0\\ x^2, & 0\le x\le \frac{1}{2}\\ 1-\frac{3}{25}(3-x)^2, & \frac{1}{2}\le x\le 3\\ 1, & x>3\end{cases}$ Then (i) Find PDF of X (ii) Evaluate $P\left[\lvert x\rvert \le 1\right]$ (iii) $P\left[\frac{1}{3}\le x\le 4\right]$	K2
Q.2	If the density function of a continuous R.V X is given by $f(x)=\begin{cases}ax, & 0\le x\le 1\\ a, & 1\le x\le 2\\ a(3-x), & 2\le x\le 3\\ 0. & \text{otherwise}\end{cases}$ then (i) Find the value of a (ii)Find the cumulative distribution function of X	K2
Q.3	(i) Find the moment generating function of exponential distribution and hence find its mean. (ii) Describe in detail about Erlang and Gamma distribution with suitable examples.	K2
Q.4	a) The length of time a person speaks over phone follows exponential distribution with mean 1/6. What is the prob. that the person will talk for (i) more than 8 min. (ii) between 4 and 6 min.? b) In a certain city the daily consumption of electric power in millions of Kilowatt hours can be treated as random variable X having Gamma distribution with parameter $\lambda=1/2$ and $\alpha=3$ If the power plant of this city; has a daily capacity of 12 million kilowatt hours, then what is the probability that this power supply will be inadequate of any given day.	K3
Q.5	a) An analog signal received at a defector (measured in microvolts) may be modeled as a Gaussian random variable N (200,256) at a fixed point in time. What is the probability that the signal exceed 240 microvolts? What is the probability that the signal is larger than 240 microvolts, given that it is larger than 210 microvolts? b) An electrical firm manufactures light bulbs that have a life, before burn-out that is normally distributed with mean equal to 800 hours and a standard deviation of 40 hours. Find the probability that bulb burns between 750 and 830 hours.	K3
	PART C	
Q.1	The time (in hours) required to repair a machine is exponentially distributed with parameter $\lambda=\frac{1}{2}$ (i) What is the probability that the repair time exceeds 2 hours?	K2

	(ii) what is the probability that a repair takes at least 10 hours given that its duration exceeding 9 hours?	
Q.2	1) Let X be a random variable of the time to failure (in minutes) of a component having weibull distribution with parameters $\alpha = \frac{1}{5}$, $\beta = \frac{1}{3}$. Find the (a) Expected time the component will last (b) The probability that the component will fail is less than 10 hours. 2) If the life X (if years) of the certain type of cars has Weibull distribution with $\beta = 2$. Find the value of the parameter α, given that probability that the life of car exceeds 5 years is $e^{-0.25}$. For these values of α and β find the mean and variance.	K2
Q.3	1) Find mean and variance of gamma distributions 2) If the time T to failure of the component follows a Weibull distribution with parameters α and β. Find the hazard rate or conditional failure rate at time 't' of the component.	K2
Q.4	Local authorities in a certain city install 10,000 electric lamps in a street of a city. If the lamps have average life of 1000 burning hours with standard deviation 200 hours, how many lamps might be expected to be failed (i) in the first 800 hours (ii) between 800 and 1200 burning hours (iii) after 1200 burning hours.	K3
Q.5	The life length X of an electronic component follows an exponential distribution. There are 2 processes by which the component may be manufactured. The expected life length of the component is 100 h, if process I is used to manufacture, while it is 150 h if process II is used. The cost of manufacturing a single component by process I is Rs 10, while it is Rs 20 for process II. Moreover if the component lasts less than the guaranteed life of 200 h, a loss of Rs 50 is to be borne by the manufacturer. Which process is advantageous to the manufacturer?	K3

	UNIT III	**B. L**
	PART A	
Q.1	Define Arithmetic Mean and Median. Also determine the median from the following data. 8,10,5,9,12,11.	K2
Q.2	List out the uses of measure of dispersion.	K1
Q.3	Write short notes on "skewness" and "Kurtosis".	K1
Q.4	The mean marks scored by 100 students was found to be 40. Later on, it was discovered that a score of 53 was misread as 83. Find the correct mean.	K2
Q.5	An analysis of the monthly wages gives the following results	K3

	Firm A	Frim B
No. of workers	500	600
Variances of distribution of wages	81	100
Average	Rs. 186	Rs. 175

In which firm is there greater variability in individual wages

Q.6	Define correlation coefficient and write its properties. And also find the correlation coefficient between x and y of the data (5, 13), (-7, 21)	K2
Q.7	State the equation of two regression lines.	K1
Q.8	Define rank correlation coefficient and its properties.	K1
Q.9	Two Regression equations are 5 x – y = 22, 64x – 45y = 24 What are the mean values of X and Y.	K3
Q.10	Define Regression. And State (i) the two equations of regression lines, (ii) two correlation coefficients.	K1
Q.11	If the correlation coefficient between X and Y is 0.5. What would be the correlation coefficient between 5X and -3Y?	K3
Q.12	If the equation of regression line are x+2y = 5and 2x +3y = 8 then find the correlation coefficient between x and y.	K3
Q.13	The first four moments of a distribution about the value 4 of the variable are – 1.5, 17, 30 and 108. Find the moments about mean, β_1 and β_2. Find the moments about the point x = 2	K3
Q.14	For 5 pairs of observations the following results are obtained $\sum X = 15$, $\sum Y = 25$, $\sum X^2 = 55$, $\sum Y^2 = 135$, $\sum XY = 83$ Find the equation of the lines of regression and estimate the value of X on the first line when Y = 12 and value of Y on the second line if X = 8.	K3
Q.15	Calculate the coefficient of correlation from the following data, n = 10, $\sum X^2 = 290$, $\sum X = 50$, $\sum Y = -30$, $\sum Y^2 = 300$, $\sum XY = -115$.	K3
	PART B	
Q.1	Calculate the Karl Pearson's coefficient of skewness for the following data	K2

Class interval	0 – 9	10 – 19	20 – 29	30 – 39	40 – 49
Frequency	10	40	20	0	10

Q.2 K2

a) Find the standard deviation of the following data

x	1	2	3	4		5	6
f	2	6	12	7		2	1

b) Obtain the mode for the following frequency distribution

x	0 –10	10 – 20	20 – 30	30 – 40	40 – 50
y	5	8	10	4	3

Q.3 Find the first four moments about the mean of the distribution and also find β_1 and β_2, γ_1 and γ_2. K2

X	2.0	2.5	3.0	3.5	4.0	4.5	5.0
f	5	38	65	92	70	40	10

Q.4 Ten competitions in a musical test were ranked by three judges A, B, and C in the following order. K3

Ranked by A	1	6	5	10	3	2	4	9	7	8
Ranked by B	3	5	8	4	7	10	2	1	6	9
Ranked by C	6	4	9	8	1	2	3	10	5	7

Using rank correlation method, discuss which pairs of judges have the nearest approach to common links in music.

Q.5 The equation of two regression lines obtained in a correlation analysis is as follows: $3X + 12Y = 19;\ \ 3Y + 9X = 46$. Obtain the correlation coefficient of X and Y and the mean values of X and Y K3

PART C

Q.1 Calculate the Karl Pearson's coefficient of skewness for the following data K2

Marks above	0	10	20	30	40	50	60	70	80
Frequency	150	140	100	80	80	70	30	14	0

Q.2 Calculate the coefficient correlation coefficient for the following pair of values of x and y, using only the variances. K2

x	55	56	58	59	60	60	62
y	35	38	38	39	44	43	44

Q.3 Find the rank correlation coefficient from the following data. K2

x	65	71	65	68	70	72	67	74
y	70	74	68	69	70	65	69	65

Q.4 The equation of two regression lines are $3x + 12y = 19$ *and* $9x + 3y = 46$ then find K3

a. The value of the correlation coefficient.
b. Mean values of x and y.
c. If the variance of x is 9, find σ_y

Q.5 Obtain the equation of the line of regression of yield of rice (y) on water (x) from the data given in the following table. K4

Water in Inches(x)	12	18	24	30	36	42	48
Yield in Tons(y)	5.27	5.68	6.25	7.21	8.02	8.71	8.42

Estimate the most probable yield of rice for 40 inches of water.

<table>
<tr><td></td><td>UNIT IV</td><td>B. L</td></tr>
<tr><td></td><td>PART A</td><td></td></tr>
<tr><td>Q.1</td><td>State the principle of least squares?</td><td>K1</td></tr>
<tr><td>Q.2</td><td>What is the error committed, when fitting a straight line of the form y = a + bx for the observed values (x_i,y_i, I = 1,2,…n)?</td><td>K2</td></tr>
<tr><td>Q.3</td><td>Write the normal equations of exponential curve.</td><td>K1</td></tr>
<tr><td>Q.4</td><td>Define sampling distribution and explain types of errors in sampling.</td><td>K1</td></tr>
<tr><td>Q.5</td><td>Define Type I and Type II errors.
Write producer’s and consumer’s risk in the context of testing of hypothesis.</td><td>K1</td></tr>
<tr><td>Q.6</td><td>Define null hypothesis and alternate hypothesis.</td><td>K1</td></tr>
<tr><td>Q.7</td><td>What do you mean by critical and acceptance regions?</td><td>K1</td></tr>
<tr><td>Q.8</td><td>What is the critical value of z at two tailed at 5% and 1% level of significance?</td><td>K1</td></tr>
<tr><td>Q.9</td><td>Define level of significance.</td><td>K1</td></tr>
<tr><td>Q.10</td><td>Define a residual</td><td>K1</td></tr>
<tr><td>Q.11</td><td>Define one tailed and two tailed tests.</td><td>K1</td></tr>
<tr><td>Q.12</td><td>A coin is tossed 144 times and person gets 80 heads. Can you say that the coin is unbiased one?</td><td>K3</td></tr>
<tr><td>Q.13</td><td>Write down the confidence limits for μ.</td><td>K3</td></tr>
<tr><td>Q.14</td><td>A sample of 900 items has the mean 3.4 and S. D. 2.61. Can the sample be regarded as drawn from a population with mean 3.25 at 5% level of significance</td><td>K3</td></tr>
<tr><td>Q.15</td><td>A random sample of 500 pineapples was taken form a large consignment and 65 were found to be bad. Find the percentage of bad pineapples in the consignment.</td><td>K3</td></tr>
<tr><td></td><td>PART B</td><td></td></tr>
<tr><td>Q.1</td><td>a) Find the curve $y = ae^{bx}$ for the following data:
<table><tr><td>X</td><td>0</td><td>5</td><td>8</td><td>12</td><td></td><td>20</td></tr><tr><td>Y</td><td>3.0</td><td>1.5</td><td>1.0</td><td>0.55</td><td></td><td>0.18</td></tr></table>Fit the power curve of the form $y = ax^b$ for the following data:
<table><tr><td>x :</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>y :</td><td>7.1</td><td>27.8</td><td>62.1</td><td>110</td><td>161</td></tr></table></td><td>K2</td></tr>
<tr><td>Q.2</td><td>In a large city, 20% of a random sample of 900 school boys are brilliant. In another city B, 18.5% of a random sample of 1600 school boys are brilliant. Is the different between the proportion significant?</td><td>K2</td></tr>
<tr><td>Q.3</td><td>In a random sample of 400 students of university teaching department, it was found that 300 students failed in the examination. In another random sample of 500 students of the affiliated college, the no. of failures in the same examination was found to be 300. Find out whether the proportion of failures in the university teaching department is significantly greater than the proportion of failures in the university teaching department and affiliated colleges taken together.</td><td>K2</td></tr>
<tr><td>Q.4</td><td>A random sample of 10 boys had the following 1.Q.'s of 70, 120,110,101,88,83,95,98,107,100. To these data support the assumption of a</td><td>K3</td></tr>
</table>

	population mean of L.Q of 100? Find a reasonable range in which most of the mean I.Q values of samples of 10 boys.	
Q.5	a) Samples of two types of electric bulbs were tested for length of life and the following data were obtained. Sample | Size | Mean | S.D 1 | 100 | 61 hours | 40 hours 2 | 200 | 63 hours | 46 hours b) Two random sample of size 1600 and 2000 of farms gave a yield of 2000kg and 2050kg respectively. The variance of the farms in country may be taken as 100kg. Examine whether the two samples differ significantly in the yield.	K3
	PART C	
Q.1	**a)** Fit a second degree parabola $y = a + bx + cx^2$ to the following data by the method of best squares: x: -3, -2, 0, 3, 4 y: 18, 10, 2, 2, 5 A manufacturer of electric bulbs, according to a certain process, find the standard deviation of the life of lamps to be 100 hours. He wants to change the process, if the new process results in a smaller variation in the life of lamps. In adopting a new process, a sample of 150 bulbs gave a standard deviation of 95 hours. Is the manufacturer justified in changing the process?	K2
Q.2	a) Explain the procedure for testing of hypothesis. And hence, the fatality rate of typhoid is believed to be 17.26 per cent. In a certain year 640 patients suffering from typhoid were treated in a metropolitan hospital and only 63 patients died. Can you consider the hospital efficient? b) The manufacturing form claim that its brand A product out sells the brand B product by 8%, it found that 42 out of sample of 200 persons prefer brand A and 18 out of another sample of 100 persons prefer brand B. Test whether 8% difference is valid claim.	K2
Q.3	(a) In a referendum submitted to the students to the body at a University, 850 men and 560 women voted. 500 men and 320 women voted favourably. Does this indicate a significant difference of opinion between men and women on this matter at 1% level of significance? (b) A trucking firm is suspicious of the claim that the average life time of certain tires is atleast 28,000 kms. To check the claim, the firm puts 40 of these tires on its trucks and get a mean life time of 27,463 kms with a standard deviation of 1,348 kms. Draw a conclusion about a trucking firm suspicious is confirmed or not at 1% level of significance.	K2
Q.4	The means of two large samples of 1000 and 2000 members are 67.5 inches and 68.0 inches respectively. Can the samples be regarded as drawn from the same population of standard deviation 2.5 inches?	K3
Q.5	The standard deviation of a random sample of 1000 is found to be 2.6 and the standard deviation of another random sample of 500 is 2.7. Assuming the	K3

	samples to be independent, find whether the two samples could have come from populations with the same standard deviation.	

	UNIT V	**B. L**
	PART A	
Q.1	Define small sample	K1
Q.2	What is degrees of freedom in t test for difference of means?	K1
Q.3	What are the basic assumptions to apply t – test?	K1
Q.4	Mention any two properties of t – test.	K1
Q.5	Write the uses of F – distribution	K1
Q.6	Give two uses / applications of χ^2 distributions	K1
Q.7	What is the test statistic used to test the significance of the difference between the means of two small samples?	K2
Q.8	State the important properties of t'-distribution.	K1
Q.9	Define " Attributes".	K1
Q.10	Write down the value of x for 2x2 contingency table a b c d	K2
Q.11	How many independent constraints are in a pxq contingency table?	K1
Q.12	Two independent samples of sizes 8 and 7 contained the following values: Sample I: 19, 17, 15, 21, 16, 18, 16, 14 Sample II: 15, 14, 15, 19, 15, 18, 16 Examine if the difference between the means is significant.	K2
Q.13	The means of two samples of sizes 9 and 7 are respectively 196.42 and 192.82. The sum of the squares of deviation from their respective means is equal to 26.94 and 18.73 respectively. Can the samples be regarded as drawn from the same normal population?	K3
Q.14	Distinguish between experimental and extraneous variables.	K2
Q.15	A random sample of size 20 taken from normal population gives a sample mean of 42 and standard deviation of 6. Test the hypothesis that the population mean is 44.	K3
	PART B	
Q.1	a) The 9 items of a sample have the following values: 45,47,50,52,48,47,49,53, and 51. Does the mean of these values differ significantly from the assumed mean 47.5? b) In one sample of 10 observations from a normal population, the sum of the squares of the deviations of the sample values from the sample mean is 102.4 and in another sample of 12 observations from another normal population, the sum of the squares of the deviations of the sample values from the sample mean is 120.5. Examine whether the two normal populations have the same variances.	K2
Q.2	The nicotine contents in two random sample of tobacco are given below Sample I: 21, 24, 25, 26, 27 Sample II: 22, 27, 28, 30, 31, 36	K2

Is the difference between the sample mean significant

Q.3

1000 students at college level were graded according to their I.Q. and their economic conditions. What conclusion can you draw from the following data?

Economic condition	L.Q Level	
	High	Low
Rich	460	140
Poor	240	160

K2

Q.4

A random sample of 400 men and 600 women were asked whether they would like to have a school near this residency. 200 men and 325 women were in favour of their proposal. Test the hypothesis that proportion of men and women in favour of the proposal are same at 5% level.

K3

Q.5

a) Two random samples gave the following results:

Sample	Size	Sample Mean	Sum of Squares of Deviation fro
1	10	15	90
2	12	14	108

Test whether the samples come from the same normal population.

b) Two Independent samples from normal populations with equal variances gave the following:

Sample	Size	Mean	S.D
1	16	23.4	2.5
2	12	24.9	2.8

Is the difference between the means significant

K3

PART C

Q.1

Two researchers P and Q analyzed different techniques while rating the student level. Can you say that the techniques adopted by them are significant?

Researchers	Below	Normal	Above	Genius	Total
P	40	33	25	2	100
Q	89	60	44	10	200
Total	126	93	69	12	300

K2

Q.2

The following table gives the number of demands for a particular spare part in a shop was found to vary from day to day.

Days:	Mon	Tues	Wed	Thu	Fri	Sat
Number of demands	124	125	110	120	126	115

Test the hypothesis that the number of parts demanded does not depend on the day of the week.

K2

Q.3

In an investigation in to the health and nutrition of two groups of children of different social status, the following results are got. Discuss the relation between the health and their social status.

Social status / Health	Poor	Rich	Total
Below normal	130	20	150
Normal	102	108	210
Above normal	24	96	120
Total	256	224	480

K2

<table>
<tr>
<td>Q.4</td>
<td>Below are given the gain in weights (in lbs) of pigs fed of two diets A and B.
<table>
<tr><td>Diet A</td><td>25</td><td>32</td><td>30</td><td>34</td><td>24</td><td>14</td><td>32</td><td>24</td><td>30</td><td>31</td></tr>
<tr><td>Diet B</td><td>44</td><td>34</td><td>22</td><td>10</td><td>47</td><td>31</td><td>40</td><td>30</td><td>32</td><td>35</td></tr>
</table>
Test if the two diets differ significantly as regards their effect on increase in weight.</td>
<td>K3</td>
</tr>
<tr>
<td>Q.5</td>
<td>A total number of 3759 individuals were interviewed were interviewed in a public opinion survey on a political proposal. Of them 1872 were men and the rest women. A total of 2257 individuals were in favor of the proposal and 917 were opposed to it. A total of 243 men were undecided and 442 women were opposed to the proposal. Do you justify or contradict the hypothesis that there is no association between sex and attitude?</td>
<td>K3</td>
</tr>
</table>

Staff Incharge **HoD**

(S.P. Lavanya) **(Dr R. Raju)**