CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (Autonomous)

B.E- IV SEM(AIML)

SUBJECT:MFDSS

ASSIGNMENT 2

<table>
<tr><th>s.no</th><th></th><th>CO</th><th>BT</th></tr>
<tr><td>1</td><td>The income tax of a man is exponentially distributed with the probability density function given by $f(x) = \begin{cases} \frac{1}{3}e^{-\frac{1}{3}x}, & x > 0 \\ 0, & x < 0 \end{cases}$
Determine the probability that his income will exceed Rs 17,000 assuming that the income tax is levied at the rate of 15% on the income above Rs 15,000?</td><td>3</td><td>L 5</td></tr>
<tr><td>2</td><td>.The mean yield per plot of a crop is 12kg and standard deviation is 2kg. If distribution of yield per plot is normal, find the percentage of plots giving yields
i) Between 13 kg and 18kg
ii) More than 25kg.</td><td>3</td><td>L 1</td></tr>
<tr><td>3</td><td>For the following normal distribution find k, μ, σ if $f(x) = ke^{-(9x^2-12x+13)}$</td><td>3</td><td>L 4</td></tr>
<tr><td>4</td><td>In a certain factory there are two independent processes for manufacturing the same item. The average weight in a sample of 700 items produced from one process is found to be 250 gms with a standard deviation of 30 gms while the corresponding grams in a sample of 300 items in other process are 300 and 40. Is there significant difference between the mean at 1% level.</td><td>4</td><td>L 5</td></tr>
<tr><td>5</td><td>A coin was tossed 960 times and returned heads 183 times. Test the hypothesis that the coin is unbiased. Use a 0.05 level of significance.</td><td>4</td><td>L5</td></tr>
<tr><td>6</td><td>.The following figures show the distribution of digit in numbers chosen at random from telephone Directory.
Test whether digits maybe taken to equally occur in the directory
<table>
<tr><td>Digits</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr>
<tr><td>Frequency</td><td>1026</td><td>1107</td><td>997</td><td>966</td><td>1075</td><td>933</td><td>1107</td><td>972</td><td>964</td><td>853</td></tr>
</table></td><td>4</td><td>L6</td></tr>
<tr><td>7</td><td>The heights of 10 males of a given locality are found to be 70,67,62,68,61,68,70,64,64,66 inches. Is it reasonable to believe that the average height is greater than 64 inches? Test at 5% significance level.</td><td>4</td><td>L 5</td></tr>
<tr><td>8</td><td>Find the remainder of $2(26)!$ is divided by 29.</td><td>5</td><td>L 4</td></tr>
<tr><td>9</td><td>Explain RSA algorithm with examples.</td><td>5</td><td>L 3</td></tr>
<tr><td>10</td><td>Find the factors of 133 by pollards (p-1) factorization method.</td><td>5</td><td>L5</td></tr>
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Dr.V.Sree Ramani