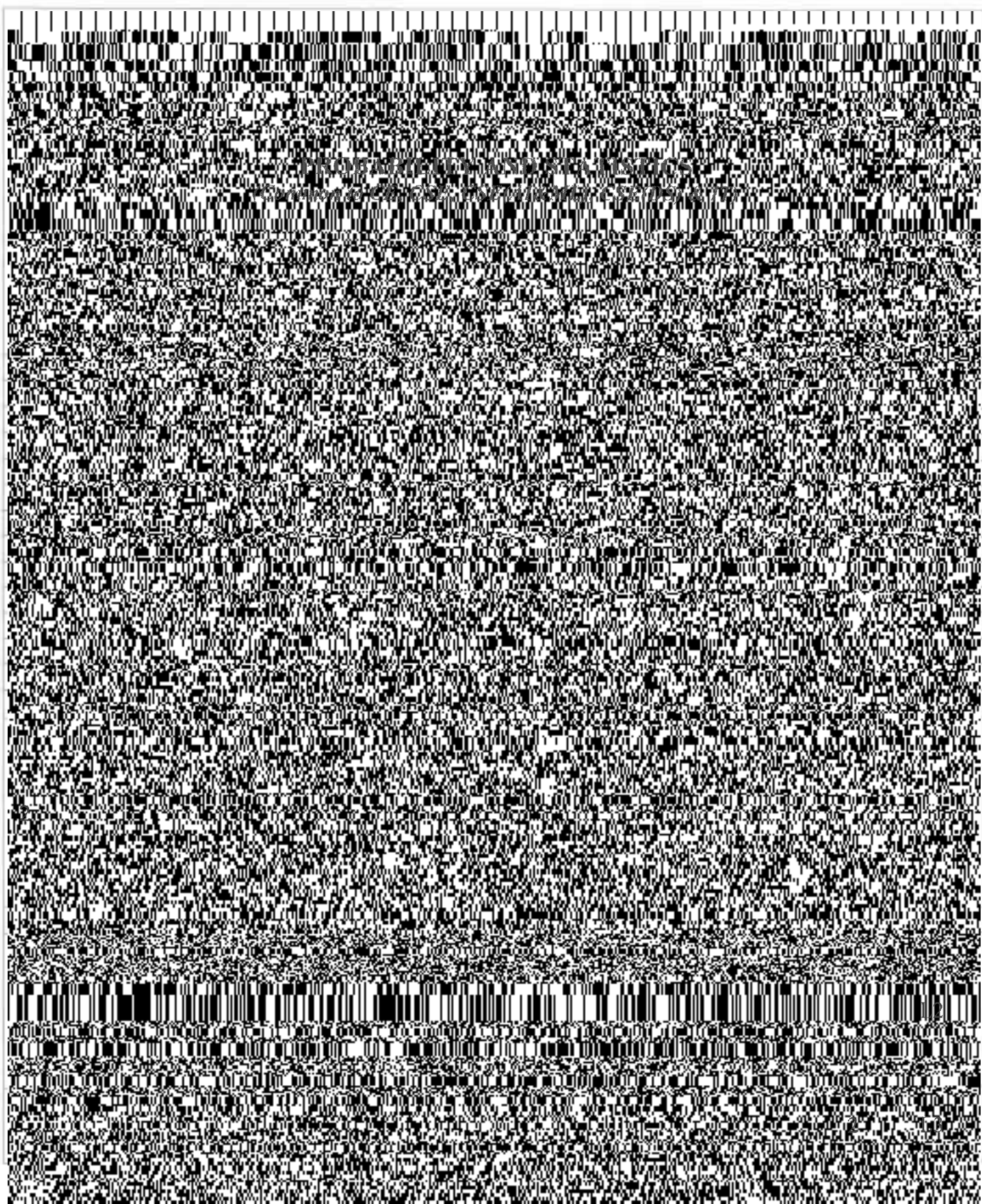




|                     |                                                                                                                                                                                                                                                                                                                                                                   |                    |    |    |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|----|----|----|----|------|-----|----|----|----|---------------------|----|----|----|----|----|----|----|----|----|----|--|--|--|
|                     | b) Fit a Poisson distribution for the following data and calculate the expected frequencies                                                                                                                                                                                                                                                                       | 5M                 | 2  | L3 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | <table><tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>f(x)</td><td>109</td><td>65</td><td>22</td><td>3</td><td>1</td></tr></table>                                                                                                                                                                                                  | x                  | 0  | 1  | 2  | 3  | 4  | f(x) | 109 | 65 | 22 | 3  | 1                   |    |    |    |    |    |    |    |    |    |    |  |  |  |
| x                   | 0                                                                                                                                                                                                                                                                                                                                                                 | 1                  | 2  | 3  | 4  |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| f(x)                | 109                                                                                                                                                                                                                                                                                                                                                               | 65                 | 22 | 3  | 1  |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | OR                                                                                                                                                                                                                                                                                                                                                                |                    |    |    |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 5                   | The marks obtained in statistics in a certain examination found to be normally distributed. If 15% of the students got greater than and equal to 60 marks, 40% of the students got less than 30 marks. Find the mean and standard deviation.                                                                                                                      | 10M                | 2  | L2 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 6                   | Fit the curve $y = ae^{bx}$ for the following data by using least square method.                                                                                                                                                                                                                                                                                  | 10M                | 3  | L3 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | <table><tr><td>x</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>y</td><td>21</td><td>35</td><td>59</td><td>92</td></tr></table>                                                                                                                                                                                                                         | x                  | 1  | 2  | 3  | 4  | y  | 21   | 35  | 59 | 92 |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| x                   | 1                                                                                                                                                                                                                                                                                                                                                                 | 2                  | 3  | 4  |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| y                   | 21                                                                                                                                                                                                                                                                                                                                                                | 35                 | 59 | 92 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | OR                                                                                                                                                                                                                                                                                                                                                                |                    |    |    |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 7                   | From the following data, Find<br>(a) The two regression equations<br>(b) The coefficient of correlation between the marks in Economics and Statistics<br>(c) The most likely marks in Statistics when marks in Economic are 30.                                                                                                                                   | 10M                | 3  | L4 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | <table><tr><td>Marks in Economics</td><td>25</td><td>28</td><td>35</td><td>32</td><td>31</td><td>36</td><td>29</td><td>38</td><td>34</td><td>32</td></tr><tr><td>Marks in Statistics</td><td>43</td><td>46</td><td>49</td><td>41</td><td>36</td><td>32</td><td>31</td><td>30</td><td>33</td><td>39</td></tr></table>                                              | Marks in Economics | 25 | 28 | 35 | 32 | 31 | 36   | 29  | 38 | 34 | 32 | Marks in Statistics | 43 | 46 | 49 | 41 | 36 | 32 | 31 | 30 | 33 | 39 |  |  |  |
| Marks in Economics  | 25                                                                                                                                                                                                                                                                                                                                                                | 28                 | 35 | 32 | 31 | 36 | 29 | 38   | 34  | 32 |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| Marks in Statistics | 43                                                                                                                                                                                                                                                                                                                                                                | 46                 | 49 | 41 | 36 | 32 | 31 | 30   | 33  | 39 |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 8                   | Assume a population consists of five numbers 2,3,6,8 and 11. Consider all possible samples of size two Which can be drawn with replacement from this population. Examine i) The population mean. ii) The standard deviation of the population. iii) The mean of the sampling distribution of means. iv) standard deviation of the sampling distribution of means. | 10M                | 4  | L3 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | OR                                                                                                                                                                                                                                                                                                                                                                |                    |    |    |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 9                   | a) A sample of 400 items is taken from a population whose standard deviation is 10. The mean of the sample is 40. Test whether the sample has come from a population with mean 38. Also calculate 95% confidence interval for the population.                                                                                                                     | 5M                 | 4  | L3 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |
|                     | b) In two large populations , there are 30%, and 25% respectively of fair haired people. Is the difference likely to be hidden in sample of 1200 and 900 respectively from two populations.                                                                                                                                                                       | 5M                 | 4  | L3 |    |    |    |      |     |    |    |    |                     |    |    |    |    |    |    |    |    |    |    |  |  |  |

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |    |    |    |    |    |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|--|-----------|----|----|----|----|----|----|----|------------|----|----|----|----|----|----|----|-----|---|----|
|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |    |    |    |    |    |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |
| 10         | <p>Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results.</p> <table><tr><td>Horse A</td><td>28</td><td>30</td><td>32</td><td>33</td><td>33</td><td>29</td><td>14</td></tr><tr><td>Horse B</td><td>29</td><td>30</td><td>30</td><td>24</td><td>27</td><td>29</td><td></td></tr></table> <p>Test whether the two horses have the same running capacity.</p>                                                      |    |    |    |    |    |    |  | Horse A   | 28 | 30 | 32 | 33 | 33 | 29 | 14 | Horse B    | 29 | 30 | 30 | 24 | 27 | 29 |    | 10M | 5 | L3 |
| Horse A    | 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30 | 32 | 33 | 33 | 29 | 14 |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |
| Horse B    | 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30 | 30 | 24 | 27 | 29 |    |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |
|            | OR                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |    |    |    |    |    |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |
| 11         | <p>Time taken by the workers in performing a job by method I and method II is given below :</p> <table><tr><td>Method- I</td><td>20</td><td>16</td><td>26</td><td>27</td><td>23</td><td>22</td><td>-</td></tr><tr><td>Method- II</td><td>27</td><td>33</td><td>42</td><td>35</td><td>32</td><td>34</td><td>38</td></tr></table> <p>Do the data show that the variances of time distribution from population from which these samples are drawn do not differ significantly ?</p> |    |    |    |    |    |    |  | Method- I | 20 | 16 | 26 | 27 | 23 | 22 | -  | Method- II | 27 | 33 | 42 | 35 | 32 | 34 | 38 | 10M | 5 | L5 |
| Method- I  | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 16 | 26 | 27 | 23 | 22 | -  |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |
| Method- II | 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 33 | 42 | 35 | 32 | 34 | 38 |  |           |    |    |    |    |    |    |    |            |    |    |    |    |    |    |    |     |   |    |

