

DEPARTMENT OF INFORMATION TECHNOLOGY, NITK SURATHKAL

LAB ASSIGNMENT-3

IT302: PROBABILITY AND STATISTICS

1. An organization having a thousand employees conducts a test to increase salaries and decide promotion of the employees. Consider the test score to be randomly generated by you using the python. Following Table shows the range of marks to be obtained to get increment and promotion. (11M)

Employees	Salary	Test Score
50	3LPM	
150	2LPM	
200	1LPM	
250	75KPM	
350	40KPM	

Test Score(%)	Salary to be Increased	Promotion Status
90-100	70%	Yes
80-90	60%	Yes
70-80	50%	Yes
60-70	30%	Yes
50-60	25%	No
40-50	20%	No
30-40	10%	No
00-30	0	No

- Find the probability of employees that get increment of different percentages (consider test score follows the normal distribution) (5M)

- What is the total increase in the total salaries of employees **(2M)**
- What is the probability of employees getting (a) a promotion (b) Promotion and minimum of 25% hike (c) Only hike (d) Neither hike nor promotion? **(4M)**

2. Write applications of the following in short (Submit handwritten scanned copy) **(9M)**

If possible use a Table to mention applications in different fields. (It is suggested to identify a recent published reference paper on the applications you identified so that it will be useful to you if selected for IT302 project)

- Different Stochastic Processes in the field of IT, AI and Data Science
- Sampling Theory in the field of IT, AI and Data Science
- Hypothesis testing in the field of IT, AI and Data Science

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