

Date : October 11, 2025
Total Marks : 100
Writing Time : 150 minutes (2.5 hours)
Reading Time : 15 minutes (prior to writing time)

1. Write your Registration Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is to check the number of pages of Question Paper, printing errors, clarify doubts and to read the instructions. You are NOT permitted to write during this time.
3. This paper consists of **TWO SECTIONS**, namely SECTION A & SECTION B:
 - **SECTION A** has two parts: Part I - 30 Multiple Choice Questions
 Part II - 4 Short Answer Questions

All questions under SECTION A are **COMPULSORY**.
 - **SECTION B** consists of two Case Studies. Choose only **ONE** case study and answer the questions of your choice.
4. All answers should be written on the Answer Booklet provided to you. Candidates are not allowed to write anything on the question paper. If required, ask for additional Answer Booklet.
5. All answers should be written with correct numbering of Section, Part and Question Number in the Answer Booklet provided to you. Note that any answer written without indicating the Section, Part and Question Number will NOT be evaluated and no marks will be awarded.
6. Begin each Section and Part on a fresh page of the Answer Booklet.
7. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
8. Use of any other paper including paper for rough work is not permitted.
9. **You must hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. This paper has **14 printed pages**, including this instruction page.

Page 1 of 14

SECTION A

PART I: Multiple Choice Questions (30 marks)

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. If $X_1, X_2, \dots, X_n$ are independent and identically distributed (iid) normal (μ, σ) , then
 - a) $\bar{X} \sim \text{normal}(\mu, \sigma^2/\sqrt{n})$
 - b) $\bar{X} \sim \text{normal}(\mu, \sigma^2/n)$
 - c) $\bar{X} \sim \text{normal}(\mu, \sigma/n)$
 - d) $\bar{X} \sim \text{normal}(\mu, \sigma/\sqrt{n})$
2. A company's monthly profits (in Ngultrums millions) over six months are: 20, 25, 30, 35, 40, 150. Which statement is TRUE?
 - a) The mean is greater than the median.
 - b) The median is greater than the mean.
 - c) The mode is the best measure.
 - d) The range is not affected by outliers.
3. A survey shows 70% of people like tea, 40% like coffee, and 20% like both. What is the probability someone likes neither?
 - a) 0%
 - b) 10%
 - c) 30%
 - d) 50%
4. A sample statistic is used to estimate
 - a) population statistic.
 - b) sample statistic.
 - c) sampling error.
 - d) population parameter.
5. A customer service team has a 70% success rate in resolving complaints. If they handle 10 cases today, how many are expected to be resolved successfully?
 - a) 3
 - b) 5
 - c) 7
 - d) 10

6. What is the key difference between Bayesian and Frequentist approaches to unknown parameters?
- The Bayesian approach treats the parameter as a random variable with a probability distribution, while the Frequentist treats it as a fixed but unknown constant.
 - The Bayesian approach treats the parameter as a fixed value, while the Frequentist treats it as a random variable.
 - The Frequentist approach updates the parameter as new data becomes available, while the Bayesian approach does not.
 - The Frequentist approach requires prior beliefs, while the Bayesian approach relies only on the observed data.
7. A researcher computes the interquartile range (IQR) to study variability. What does the IQR represent?
- The range covering the middle 50% of the observations including extreme values.
 - The average deviation of all values from the median.
 - The difference between the 75th percentile and the 25th percentile values.
 - The total spread of the data excluding the top and bottom 25% values.
8. Which of the following is NOT an assumption of the classical linear regression model?
- Linearity
 - Homoscedasticity
 - Multicollinearity
 - No autocorrelation
9. Suppose a multiple linear regression model shows an R-squared = 0.92 and Adjusted R-squared = 0.45. What is the best interpretation?
- Model is perfect.
 - Overfitting due to too many predictors.
 - Predictors are uncorrelated.
 - Residuals are normally distributed.
10. If a constant is multiplied to every value in a dataset, how does the standard deviation change?
- It stays the same.
 - It increases by the square of the constant.
 - It increases by the same constant.
 - It becomes zero.
11. The distribution of wealth in a country is highly right-skewed. Which combination best describes it?
- Mean < Median < Mode
 - Median = Mode < Mean
 - Mode > Mean > Median
 - Mean > Median > Mode

12. Suppose consumer price index rose from 130 to 143 in a year. What is the approximate annual inflation rate?
 - a) 10%
 - b) 9%
 - c) 8%
 - d) 7%
13. In a company, 70% of employees know Excel, 40% know Python, and 30% know both. What is the probability that a randomly chosen employee knows Python given that they know Excel?
 - a) 0.30
 - b) 0.40
 - c) 0.43
 - d) 0.70
14. A survey reports a 95% confidence interval for a proportion as [0.45, 0.55]. What is the approximate standard error?
 - a) 0.025
 - b) 0.05
 - c) 0.10
 - d) 0.50

House rent varies considerably across regions and housing characteristics. A study is carried out to understand how **house rent (in Ngultrum)** is influenced by two key factors:

1. **Number of rooms** in the dwelling (a proxy for house size); and
2. **Geographic area type**, categorized by rural, semi-urban and urban.

The aim is to quantify how much rent varies by housing size and location, and whether these differences are statistically significant. Answer **Questions 15, 16, 17 and 18** referring a summary output of the model shown below:

Call:

lm(formula = house_rent ~ no_of_rooms + area, data = house_data)

Residuals:

Min	1Q	Median	3Q	Max
-4162.88	-1032.59	-68.12	1017.21	4863.45

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	3007.2	293.5	10.25	< 2e-16 ***
no_of_rooms	1012.8	48.1	21.06	< 2e-16 ***
areaSemi-urban	1968.6	262.7	7.49	3.5e-13 ***
areaUrban	3971.4	275.2	14.43	< 2e-16 ***

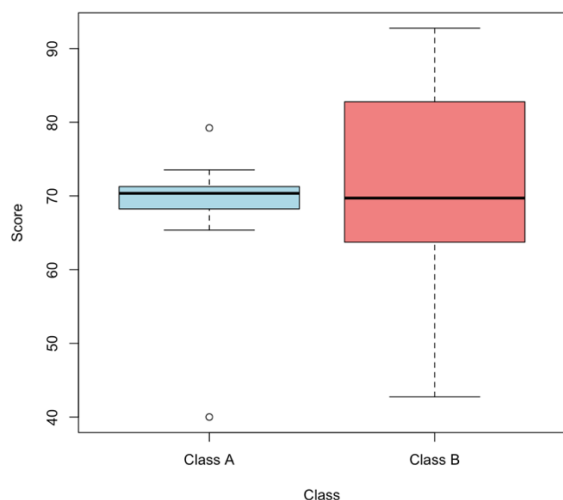
Residual standard error: 1470 on 296 degrees of freedom

Multiple R-squared: 0.740, Adjusted R-squared: 0.737

F-statistic: 280.6 on 3 and 296 DF, p-value: < 2.2e-16

15. What does the intercept term of approximately 3007 Ngultrum represent in this model?
- a) Average rent in semi-urban areas with 1 room.
 - b) Predicted rent in rural areas when number of rooms is zero.
 - c) Starting value for urban houses.
 - d) Average rent for all areas combined.
16. If we increase the number of rooms by 3 in a house located in an urban area, what is the expected change in predicted rent compared to a rural house with the same original number of rooms?
- a) 933.0
 - b) 3971.4
 - c) 7,009.8
 - d) 10,017.0
17. If the average number of rooms in semi-urban areas is 4.5, what is the expected mean house rent in semi-urban areas?
- a) 8,450 Ngultrumss
 - b) 9,533 Ngultrums
 - c) 10,150 Ngultrums
 - d) 12,000 Ngultrums
18. In the regression model output, what is the estimated difference in average house rent between urban and rural areas, holding the number of rooms constant?
- a) 1012.8 Ngultrums
 - b) 3971.4 Ngultrums
 - c) 3007.2 Ngultrums
 - d) 1968.6 Ngultrums
19. Which is NOT part of time series components?
- a) Trend
 - b) Seasonal
 - c) Irregular
 - d) Outliers
20. In a two-stage cluster sample, why is probability proportionate to size (PPS) sampling often used at the first stage?
- a) To control the final sample size by accounting for varying cluster sizes
 - b) To ensure every household has an equal chance of selection
 - c) To eliminate the need for stratification
 - d) To reduce the number of clusters needed

Answer **Question 21** using the boxplot given below.



21. A boxplot comparing exam scores for two classes shows one box much wider than the other. What does this imply?
 - a) The class with the wider box had more students.
 - b) The class with the wider box had higher average scores.
 - c) The class with the wider box had greater variability in scores.
 - d) The class with the wider box had more outliers.
22. If a survey estimate has a coefficient of variation (CV) of 10%, what does this indicate?
 - a) The estimate deviates from the true value by approximately $\pm 10\%$.
 - b) The standard error amounts to 10% of the estimate value.
 - c) The total width of the confidence interval equals 10% of the estimate.
 - d) The sampling design has no effect on variance (design effect equals 1.0).
23. A researcher increases the significance level (from 0.01 to 0.10). What is the most likely consequence?
 - a) Decrease in power of the test
 - b) Decreased chance of detecting real effect
 - c) Increased risk of Type I error
 - d) Increased risk of Type II error
24. A car manufacturer tests the fuel efficiency (in km/L) of a new model. A sample of 25 cars shows a mean of 18 km/L with a standard deviation of 3 km/L. The company claims the true efficiency exceeds 16 km/L. Which hypothesis test conclusion aligns with a 95% confidence interval?
 - a) Accept the claim
 - b) Insufficient data to conclude
 - c) The CI is irrelevant for hypothesis testing
 - d) Reject the claim

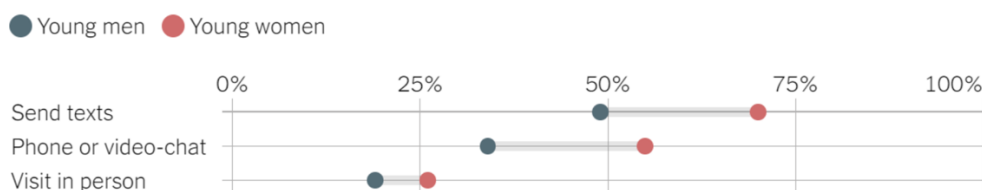
25. A policy analyst uses multivariate regression to assess the impact of education level on income, controlling for gender and location. What is the primary advantage of this approach?
- a) Controls for confounding variables
 - b) Allows extrapolation beyond the sample
 - c) Avoids the need for sampling weights
 - d) Ensures normal distribution of residuals
26. In a logistic regression predicting program participation (yes/no), What does an odds ratio of 2.0 for income indicate?
- a) Higher income groups are twice as likely to participate.
 - b) Doubling income doubles participation probability.
 - c) Income has no effect.
 - d) The model is linear.
27. *ZheyGo* observes that delivery times follow a normal distribution with a mean 30 minutes and standard deviation of 10 minutes. What is the chance that a delivery exceeds 50 minutes?
- a) About 2.5%
 - b) About 5%
 - c) About 16%
 - d) About 32%
28. A survey uses stratified sampling to improve precision. What is a key assumption for stratification to be effective?
- a) Strata should be as heterogeneous as possible.
 - b) Strata should be as homogeneous as possible internally.
 - c) Strata should have equal sample sizes.
 - d) Strata should be selected using PPS sampling.
29. If $P(A) = 0.4$ and $P(B) = 0.5$, and A and B are mutually exclusive, then $P(A \cup B)$ is
- a) 0.2
 - b) 0.4
 - c) 1.0
 - d) 0.9
30. A sampling expert was designing a national household survey is to measure unemployment rates. If urban and rural areas are treated as separate domains, what is the main implication for sample size?
- a) The total sample size remains unchanged.
 - b) The sample size must be doubled.
 - c) The sample size can be reduced by 50%.
 - d) Only urban areas need to be sampled.

PART II – Short Answer Questions [20 marks]

This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks.

- Describe the advantages and disadvantages of stratified sampling over simple random sampling scheme. Each supporting point will be awarded 1 mark only. [5 marks]
- The figure below was published in The New York Times. The data was from an online survey of 1,495 young adults ages 18 to 34. Young adults who responded that they are not in contact with their living parents were screened out of the survey.

Percentage of young people who say they reach out to a parent at least once a day or a few times a week.



- What do you notice? [2 marks]
 - How does this relate to you and your community? [2 marks]
 - Create a catchy headline that captures the figure's main idea. [1 mark]
- A total of 3,000 graduates appeared for the Bhutan Civil Service Examination 2024. Assuming the exam marks followed a normal distribution, with a mean of 55 and a standard deviation of 8, answer the following questions:
 - What proportion of graduates scored less than 60? [1 mark]
 - What proportion of graduates scored between 45 and 65? [2 marks]
 - If a "High Achiever" tag is to be awarded to graduates scoring at least 70, how many examinees will receive this distinction? [2 marks]
 - Consider a simple random sample of size n drawn from a large population where the true proportion of individuals with a certain characteristic is p . Let $\hat{p} = \frac{X}{n}$ denote the sample proportion, where X is the number of individuals in the sample with the characteristic.
 - Derive $E(\hat{p})$. [2 marks]
 - Derive $Var(\hat{p})$. [2 marks]
 - Suppose $p = 0.3$ and $n = 200$, calculate standard error of $(\hat{p})$. [1 mark]

SECTION B: Case Study [50 marks]

Choose either CASE I OR CASE II from this section. Each case study carries 50 marks. Mark for each sub-question is indicated in the brackets.

CASE I

The Department of Environment and Climate Change under the Ministry of Energy and Natural Resources (MoENR) has been advocating for a nationwide ban on single-use plastics. To understand public sentiment, they claimed that at least 60% of residents support this environmental measure. However, a local researcher conducted a survey of 400 randomly selected residents, and only 226 of them indicated support for the ban. The Department wants to verify whether the survey data challenges their belief.

Use this context to answer the following questions. [use standard normal distribution table wherever necessary].

- a) Formulate hypotheses for testing whether less than 60% of the population supports the ban. Mention whether this is a one-sided or two-sided test, and justify your answer. [2+2 marks]
- b) Use the survey data to test the hypotheses at 5% level of significance. Calculate test statistic and compare to its sampling distribution under the null hypothesis by calculating the p-value. [6 + 2 marks]
- c) Based on the findings in sub-question (b), what do you conclude? Explain in plain language what this means in the real-world context of public support. [1+2 marks]
- d) If critical region concept is used for conclusion. What do you conclude? Show your results to support the conclusion. [3 marks]
- e) Construct a 95% confidence interval for the true population proportion of people who support the ban. Interpret the confidence interval. Does the interval support or contradict your decision from sub-question (c)? [6 + 3 + 1 marks]
- f) Suppose a policymaker believes that the actual support differs from 60%. Formulate the null and alternative hypotheses for this scenario. Re-calculate the test statistic and p-value at 5% level of significance and draw conclusion. [2 + 6 + 2 marks]
- g) The sample of 400 residents was drawn from a relatively small region with only 2,000 adult residents. Since the sample comprises a significant fraction (20%) of the total population, the policymaker is advised to apply a finite population correction (FPC) when calculating the standard error. Test whether the true proportion is less than 60%, as before, using a 5% level of significance.
 - i. Recalculate the **standard error** using the FPC. [3 marks]
 - ii. Compute the **new z-statistic** using the corrected standard error. [5 marks]

- iii. Determine whether this affects the decision to reject or fail to reject the null hypothesis. [1 mark]
- iv. Briefly explain how accounting for FPC changes the interpretation or reliability of the test results. [3 marks]

CASE II

The National Statistics Bureau is studying whether unemployment in regions is related to the number of crimes reported, where:

Y: Number of crimes reported

X: Unemployment rate (%) in the region A

A simple linear regression model is used to describe the relationship at $\alpha = 0.05$. A summary output of the model is provided below (R output):

```
Call:
lm(formula = crime_reported ~ unemployment_rate, data = data)

Residuals:
    Min       1Q   Median       3Q      Max
-56.862  -14.015   0.271  13.115  68.145

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    50.9485     1.4837   34.34 <2e-16 ***
unemployment_rate  7.9352     0.1225   64.77 <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 20.04 on 998 degrees of freedom
Multiple R-squared:  0.8078, Adjusted R-squared:  0.8076
F-statistic: ? on ? and ? DF, p-value: < 2.2e-16
```

- a. What are the estimated coefficients of the regression model? Write the regression equation based on the fitted model. [2+5 marks]
- b. Interpret estimated regression coefficients. Is intercept meaningful in this context? [4+4+2 marks]
- c. How well does the model fit? Explain briefly in layperson terms. [3+2 marks]

- d. You wish to test whether there is a statistically significant relationship between unemployment and crime.
- State the null and alternative hypotheses for the slope coefficient. **[2 marks]**
 - Using the summary output, write the p-value and interpret it at the 5% level. **[2 marks]**
 - State your conclusion. **[1 mark]**
- e. Predict the number of crimes in a region A with **10% unemployment rate**. If the actual number of crimes was 130, calculate the **residual** and interpret it. **[3+5 marks]**
- f. List any **two key assumptions** of simple linear regression. Explain briefly how you would check these using diagnostic plots. **[7 marks]**
- g. Fill in the details for the ANOVA table. (*hint: use summary output*). **[8 marks]**

Analysis of Variance Table				
Response: crime_reported				
Source	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic
Model (Regression)	i	iv	vi	viii
Residual (Error)	ii	v	vii	
Total	iii	2,085,123		

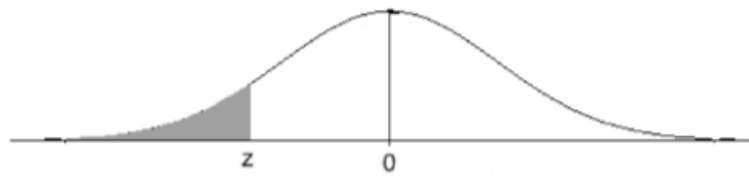
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Statistical Tables

t Distribution: Critical Values of t

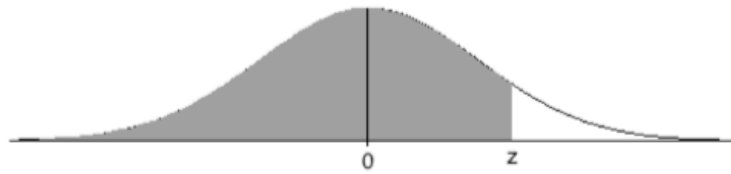
<i>Degrees of freedom</i>	<i>Two-tailed test: One-tailed test:</i>	<i>Significance level</i>					
		10% 5%	5% 2.5%	2% 1%	1% 0.5%	0.2% 0.1%	0.1% 0.05%
1		6.314	12.706	31.821	63.657	318.309	636.619
2		2.920	4.303	6.965	9.925	22.327	31.599
3		2.353	3.182	4.541	5.841	10.215	12.924
4		2.132	2.776	3.747	4.604	7.173	8.610
5		2.015	2.571	3.365	4.032	5.893	6.869
6		1.943	2.447	3.143	3.707	5.208	5.959
7		1.894	2.365	2.998	3.499	4.785	5.408
8		1.860	2.306	2.896	3.355	4.501	5.041
9		1.833	2.262	2.821	3.250	4.297	4.781
10		1.812	2.228	2.764	3.169	4.144	4.587
11		1.796	2.201	2.718	3.106	4.025	4.437
12		1.782	2.179	2.681	3.055	3.930	4.318
13		1.771	2.160	2.650	3.012	3.852	4.221
14		1.761	2.145	2.624	2.977	3.787	4.140
15		1.753	2.131	2.602	2.947	3.733	4.073
16		1.746	2.120	2.583	2.921	3.686	4.015
17		1.740	2.110	2.567	2.898	3.646	3.965
18		1.734	2.101	2.552	2.878	3.610	3.922
19		1.729	2.093	2.539	2.861	3.579	3.883
20		1.725	2.086	2.528	2.845	3.552	3.850
21		1.721	2.080	2.518	2.831	3.527	3.819
22		1.717	2.074	2.508	2.819	3.505	3.792
23		1.714	2.069	2.500	2.807	3.485	3.768
24		1.711	2.064	2.492	2.797	3.467	3.745
25		1.708	2.060	2.485	2.787	3.450	3.725

Table of Standard Normal Probabilities for Negative Z-scores



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641

Table of Standard Normal Probabilities for Positive Z-scores



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998