



**ZIAUDDIN UNIVERSITY**  
EXAMINATION BOARD

**Higher Secondary School  
Certificate (HSC)**

**Examination Syllabus  
&  
Model Paper  
(For the Year 2024)**

**Business Statistics – XII**

**Prepared by:**

**Mr. Wynberg Leal  
Manager Academics - Commerce**

<b>S. No.</b>	<b>Table of Contents</b>	<b>Page No.</b>
1	Preface	3
2	Aims and objectives of the subject of specific syllabus	4
3	Detailed Syllabus - Topics, Student Learning Outcomes (SLOs), Cognitive Distribution	5
4	Table of Specification	9
5	Scheme of Assessment	11
6	Definition of Cognitive Levels	12
7	Blooms Taxonomy with examples	15
8	HSC Scheme of Studies	17
9	Model Paper 2024	19

**You can Approach us:**

Address: Ziauddin University Examination Board

D / 20 Block 1 Clifton Karachi

Phone: 92 21 35148594

E-mail: [info@zueb.edu.pk](mailto:info@zueb.edu.pk)

Website: [www.zueb.edu.pk](http://www.zueb.edu.pk)

## Preface

Ziauddin University Examination Board (ZUEB) was established by the Sindh ACT XLI 2018, with the aim of improving the quality of education. The Board administers examinations for the Secondary School Certificate (SSC) and Higher Secondary School Certificate (HSSC) based on the latest Reviewed National Curriculum by Directorate Curriculum Assessment and Research (DCAR) Sindh. ZUEB has a mandate by Ordinance to offer such examination services to English /Urdu and Sindhi medium candidates for SSC and HSSC from private schools in Sindh. This examination syllabus exemplifies ZUEB's commitment to provincial educational goals.

The Examination Board has prepared with the help of subject professors, subject wise syllabus. It is important to make the difference between syllabus and curriculum. The syllabus of a subject is considered as a guide for the subject teacher as well as the students. It helps the students understand the subject in detail. It also helps students to anticipate what is expected from them while preparing for the exams.

This examination syllabus brings together all those cognitive outcomes of the Provincial Curriculum statement which can be reliably and validly assessed. While the focus is on the cognitive domain, particular emphasis is given to the application of knowledge and understanding.

The examination syllabus is uploaded on the ZUEB website. This is done to help affiliated schools in planning their teaching. It is the syllabus, not the prescribed textbook which is the basis of the ZUEB examinations. In addition, the ZUEB examination syllabus is used to develop learning support materials for students and teachers. The examination board stand committed to all students who have embarked upon the SSC, and HSSC courses in facilitating their learning outcomes. Our examination syllabus document ensures all possible support.

On the Ziauddin University Examination Board website, a tab e –resource is made available which provides resource material in all subjects both in text form in line with the curriculum and also videos on topics to give students access to learn at their own pace and own time. These 15 to 20 minutes videos are prepared around subject concept / topics. These videos are available to the students for revisiting a lesson taught by their teacher or watch it prior to the lesson and as a reinforcement strategy. The work on videos is in progress and new titles will be uploaded.

Please look out for the videos on the given website.

Humbly Yours;



**Shahbaz Nasim**  
**Academic Head**

## **Aims of the syllabus of Business Statistics:**

The Aims of teaching Business Statistics at Higher Secondary School Level are to:

- Introduce students to the expertise of collecting, analyzing, interpreting and presenting data.
- develop the skills necessary to make informed decisions based on data and improve business processes.
- provide them with the statistical knowledge and tools necessary to understand consumer behavior better and forecast future trends and patterns.
- To create a sense of appreciation for the role of statistics in business.



	Diagrams	<p>Draw Histogram for frequency distribution</p> <p>Draw Frequency Polygon for frequency distribution.</p> <p>Draw Frequency curve for frequency distribution.</p> <p>Draw Ogives for frequency distribution.</p> <p>Draw Simple Bar Diagram to represent data</p> <p>Draw Multiple Bar Diagram to represent data.</p> <p>Draw Sub-divided/Component Bar Diagram to represent data.</p> <p>Draw Pie Diagram to represent data.</p>			* * * * * * *
Averages	<p>Mean</p> <p>Median</p> <p>Mode</p> <p>Empirical Relationship b/w Mean, Median, Mode</p>	<p>Define Average and when it is used.</p> <p>Define arithmetic mean and write its formula.</p> <p>Calculate Arithmetic Mean.</p> <p>Describe the properties of Arithmetic Mean.</p> <p>Calculate Arithmetic Mean using its properties.</p> <p>Calculate Combined Mean.</p> <p>Calculate Weighted Mean</p> <p>Calculate Mean from frequency distribution/ Grouped data.</p> <p>Define Median and write its formula.</p> <p>Calculate Median of Un-grouped data</p> <p>Calculate Median of Grouped data.</p> <p>Draw Median by Graph for data.</p> <p>Define Mode.</p> <p>Calculate Mode from un-grouped data.</p> <p>Calculate Mode from grouped data.</p> <p>Draw Mode by Graph for data.</p> <p>Describe the empirical relation b/w Mean, Median and Mode.</p> <p>Solve problems using the empirical relationship b/w the averages.</p>	* *	*	* * * * * * * * * * * * *
Index Numbers	<p>Index Numbers.</p> <p>Types of Index Numbers.</p> <p>Laspeyre, Paasche, Fisher's Formulas</p>	<p>Define Index Numbers.</p> <p>Explain the types and classification of Index Numbers.</p> <p>Explain the methods of construction of price index numbers.</p> <p>Calculate Price Index numbers using fixed base method.</p> <p>Calculate Price Index numbers using chain base method.</p> <p>Describe base shifting.</p>	*	* *	* *

		<p>Calculate index numbers by shifting the base.</p> <p>Explain construction of composite price index numbers using simple aggregative method and simple average method.</p> <p>Calculate the Price Index using Simple aggregative method (Fixed Base)</p> <p>Calculate the price index using simple average of Relatives Method (fixed base)</p> <p>Calculate using Simple average of Relatives Method (chain base)</p> <p>Describe weighted index numbers and its types.</p> <p>Define Laspeyre’s Formula, and write down the formula.</p> <p>Calculate Laspeyre’s Price Index.</p> <p>Define Paasche’s Formula, and write down the formula.</p> <p>Calculate Paasche’s Price Index.</p> <p>Define Fisher’s Formula, and write down the formula.</p> <p>Calculate Price Index using Fisher’s ideal formula.</p>		<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>
Probability Theory	<p>Permutations</p> <p>Combinations</p> <p>Probability</p>	<p>Explain factorial notation.</p> <p>Solve problems on factorial notation.</p> <p>Explain Permutations</p> <p>Solve problems on Permutations of “n” different objects taken “r” at a time.</p> <p>Solve problems on Permutations of “n” objects when they are not all different.</p> <p>Explain combination, and write its formula.</p> <p>Solve problem on combination of “n” different objects taken “r” at a time.</p> <p>Define Experiment, Outcome, Sample Space, and Event.</p> <p>Define Probability.</p> <p>Explain Probability theory.</p> <p>Explain basic properties of probability.</p> <p>Calculate probability of simple events.</p> <p>Calculate probability of complementary events.</p> <p>Describe mutually exclusive events.</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	

		<p>Solve problems on probability of mutually exclusive events.</p> <p>Describe not mutually exclusive events.</p> <p>Solve problems on probability of non-mutually exclusive events.</p> <p>Describe independent events.</p> <p>Solve problems on probability of independent events.</p> <p>Describe dependent events.</p> <p>Solve problems on probability of dependent events.</p>		<p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p>
--	--	--	--	-------------------------------------	-------------------------------------



## Table of Specification (TOS)

**Table 1: Number of Student Learning outcomes (SLOs) and their cognitive distribution**

Topic No.	Topic	Student Learning Outcomes			Total
		K	U	A	
1	Introduction	5	4	0	9
2	Presentation of Data	1	6	5	12
3	Graphs and Diagrams	0	1	8	9
4	Averages	4	2	12	18
5	Index Numbers	4	5	9	18
6	Probability Theory	2	9	10	21
	<b>Total</b>	<b>16</b>	<b>27</b>	<b>44</b>	<b>87</b>
	<b>Percentage (%)</b>	<b>18%</b>	<b>31%</b>	<b>51%</b>	<b>100%</b>

**Note:**

1. Table 1 identifies the Student Learning outcomes and their cognitive distribution (Knowledge, Understanding, Application).
2. The table shows that the share of knowledge is 18% with 16 SLOs, Understanding is 31% with 27 SLOs, and Application is 51% with 44 SLOs.
3. Please note that Table 1 does not translate to marks distribution in the exam paper and weightage of each topic is calculated separately in Table 3

**Table 2: No. of SLOs and their % Share per Topic**

Topic No	Topic	Total SLOs	% Share of SLOs
1	Introduction	9	10%
2	Presentation of Data	12	14%
3	Graphs and Diagrams	9	10%
4	Averages	18	21%
5	Index Numbers	18	21%
6	Probability Theory	21	24%
	<b>Total</b>	<b>87</b>	<b>100%</b>

**Note:**

1. Table 2: shows the % share of SLOs per Topic.
2. The Topics of Probability Theory has the highest % share of SLOs at 24%, followed by Index numbers and Averages at 21% each.
3. Please note that Table 2 does not translate to marks distribution in the exam paper and weightage of each topic is calculated separately in Table 3

**Table 3: Exam Paper Specification, Topic Difficulty, Types of Questions, No. of Questions per Topic, and Marks Allocation per Section**

Topics	Difficulty Level	Section A	Section B	Section C
		MCQs @ 1 mark each	CRQ/SAQs @ 4 marks each	ERQ/DAQs @ 10 marks each
Introduction	Easy	2	1	1
Presentation of Data	Easy	1	1	
Graphs and Diagrams	Easy	1	1	
Averages	Moderate	2	1	
Index Numbers	Moderate	2	2	1
Probability Theory	Moderate Difficult	2	2	1
<b>Total questions to be given</b>		<b>10</b>	<b>8</b>	<b>3</b>
<b>Total questions to be attempted</b>		<b>10</b>	<b>5</b>	<b>2</b>
<b>Maximum marks obtainable</b>		<b>10</b>	<b>20</b>	<b>20</b>

**Note:**

1. Table 3 displays Paper specification, Topic difficulty level, the 3 types of Questions used, the number of questions per topic to be used, marks allocation per section.
2. The Exam Paper consists of 3 Sections:
  - a. Section A = Multiple Choice Questions (MCQs)
  - b. Section B = Short Answer Questions / Constructive Response Questions (CRQs)
  - c. Section C = Detailed Answer Questions / Extended Response Questions (ERQs); require more detailed answers necessitating a broader understanding of concepts, and complex calculations compared to CRQ

**ZIAUDDIN UNIVERSITY EXAMINATION BOARD**  
**GRADE XII – BUSINESS STATISTICS**  
**SCHEME OF ASSESSMENT**

**Maximum Marks: 50**

**Section ‘A’: Multiple Choice Questions (20%) 10 Marks** **(1x10=10)**

Multiple Choice Question will cover the complete Syllabus

- Each MCQ carries 1 mark
- Given MCQs will be = 10 MCQs
- All MCQs to be answered

**Section ‘B’: Short Answer Questions (40%) 20 Marks** **(4x5=20)**

- Short Answer Question must be given from the prescribed Syllabus all content is to be followed.
- Seven (7) Short Answer Questions may be given. Each Question having (4 Marks). In this Section Student shall attempt (5 Questions).

**Section ‘C’ (Detailed Answer Questions) (40%) 20 Marks** **(2x10=20)**

- Three (3) Detailed Answer Questions may be given in this section and (2 Questions) are to be answered and each Question having (10 Marks).

## DEFINITIONS OF COGNITIVE LEVELS

### Remember

Remembering is the act of retrieving knowledge and can be used to produce things like definition or lists. The student must be able to recall or recognize information and concepts. The teacher must present information about a subject to the student, ask questions that require the student to recall that information and provide written or verbal assessment that can be answered by remembering the information learnt.

### Question Stems

Can you name all the ...?  
Describe what happens when ...?  
How is (are) ...?  
How would you define ...?  
How would you identify ...?  
How would you outline ...?  
How would you recognize...?  
List the ... in order.  
What do you remember about ...?  
What does it mean?  
What happened after?  
What is (are) ...?  
What is the best one?  
What would you choose ...?  
When did ...?  
Where is (are) ...?  
Which one ...?  
Who spoke to ...?  
Who was ...?  
Why did ...?

### Understand

The next level in the taxonomic structure is Understanding, which is defined as the construction of meaning and relationships. Here the student must understand the main idea of material heard, viewed, or read and interpret or summarize the ideas in their own words. The teacher must ask questions that the student can answer in their own words by identifying the main idea.

### Question Stems

Can you clarify...?  
Can you illustrate ...?  
Condense this paragraph.  
Contrast ...  
Does everyone think in the way that ... does?  
Elaborate on ...  
Explain why ...  
Give an example  
How can you describe  
How would you clarify the meaning  
How would you compare ...?  
How would you differentiate between ...?  
How would you describe...?  
How would you generalize...?  
How would you identify ...?  
Is it valid that ...?  
Is this the same as ...?  
Outline ...  
Select the best definition  
State in your own words  
This represents ...  
What are they saying?  
What can you infer from ...?  
What can you say about ...?  
What could have happened next?  
What did you observe?  
What does this mean?  
What expectations are there?  
What information can you infer from  
What is the main idea of ...?  
What restrictions would you add  
What seems likely?

	<p>What seems to be ...?          What would happen if ...?          What would happen if ...?          Which are the facts?          Which statements support ...?</p>
<p><b>Apply</b>          The third level in Bloom's taxonomy, Applying marks a fundamental shift from the pre-Bloom learning era because it involves remembering what has been learnt, having a good understanding of the knowledge, and applying it to real-world exercises, challenges or situation. Students must apply an abstract idea in a concrete case to solve a problem or relate it to prior experience. The teacher must provide opportunities for students to use theories and problem-solving techniques in new situations and review and check their work. Assessment questions should be provided that allow students to define and solve problems.</p> <p><b>Question Stems</b></p> <p>Can you group by characteristics such as...?          Choose the best statements that apply          Clarify why ...          Do you know of another instance where...?          Draw a story map          Explain why a character acted in the way that he did          From the information given, can you develop a set of instructions about ...?          How could you develop ...?          How would you change ...?          How would you demonstrate...?          How would you develop ... to present          How would you explain ...?</p>	<p><b>Analyze</b>          Analyzing is the cognitive level where students can take the knowledge they have remembered, understood and applied, then delve into that knowledge to make associations, discernments or comparisons. Students should break down a concept or idea into parts and show relationship between these parts. Teachers must give student time to examine concepts and their requisite elements. Students are required to explain why they chose a solution.</p> <p><b>Question Stems</b></p> <ul style="list-style-type: none"> <li>• Can you distinguish between ...?</li> <li>• Can you explain what must have happened when ...?</li> <li>• Determine the point of view, bias, values, or intent underlying the presented material</li> <li>• Discuss the pros and cons of ...</li> <li>• How can you classify ... according to ...?</li> <li>• How can you compare the different parts?</li> <li>• How can you sort the different parts...?</li> <li>• How is ... connected to ...?</li> <li>• How is ... similar to ...?</li> <li>• How would you categorize...?</li> <li>• How would you explain?</li> <li>• If ... happened, what might the ending have been?</li> <li>• State the point of view of ...</li> <li>• What are some of the problems of ...?</li> <li>• What assumptions ...?</li> <li>• What can you infer about...?</li> <li>• What can you point out about?</li> <li>• What conclusions ...?</li> <li>• What do you see as other possible outcomes?</li> <li>• What does the author assume?</li> <li>• What explanation do you have for ...?</li> <li>• What ideas justify the conclusion?</li> <li>• What ideas validate...?</li> <li>• What is the analysis of ...?</li> <li>• What is the function of ...?</li> </ul>

	<ul style="list-style-type: none"><li>• What is the problem with ...?</li><li>• What motive is there?</li><li>• What persuasive technique is used?</li><li>• What statement is relevant?</li><li>• What was the turning point?</li><li>• What were some of the motives behind...?</li><li>• What's fact? Opinion?</li><li>• What's the main idea?</li><li>• What's the relationship between?</li><li>• Which events could not have happened?</li><li>• Why did ... changes occur?</li><li>• Why do you think?</li></ul>
--	---

## BLOOMS TAXANOMY WITH EXAMPLES

If you are a teacher looking for ways to engage your students in learning, this LIST of questions might be interesting for your classroom practice. Bloom's Taxonomy question stems can help elicit higher-order thinking skills and promote critical thinking among learners at different taxonomy levels. These question stems can also encourage students to think about their knowledge through reflection before answering questions.

### ACTION WORDS FOR COGNITIVE LEVELS

Knowledge	Understand	Apply	Analyze	Evaluate	Create
define	explain	solve	Analyze	reframe	design
identify	describe	apply	Appraise	criticize	compose
describe	interpret	illustrate	judge	evaluate	create
label	paraphrase	modify	support	order	plan
list	summarize	use	compare	compare	combine
name	classify	calculate	decide	classify	formulate
state	compare	change	discriminate	contrast	invent
match	differentiate	choose	recommend	distinguish	hypothesize
recognize	discuss	demonstrate	summarize	infer	substitute
select	distinguish	discover	assess	separate	write
examine	extend	experiment	choose	explain select	compile
locate	predict	relate	convince	categorize	construct
memorize	associate	show	defend	connect	develop
quote	contrast	sketch	estimate	differentiate	generalize
recall	convert	complete	grade	divide	integrate
reproduce	demonstrate	construct	measure	order	modify
tabulate	estimate	dramatize	predict	prioritize	organize
tell Copy	express	interpret	rank	survey	prepare
discover	identify	manipulate	score	calculate	produce
duplicate	indicate	paint	select	conclude	rearrange
enumerate	infer	prepare	test	deduce	rewrite
listen	relate	act	conclude	devise	adapt
observe	restate	collect	consider	diagram	anticipate
omit	select	compute	critique	dissect	arrange
read	translate	explain list	debate	estimate	assemble
recite record	ask	operate	distinguish	evaluate	choose
repeat retell	cite	practice	editorialize	experiment	collaborate
visualize	discover	simulate	justify	focus	facilitate
	generalize	transfer write	persuade	illustrate	imagine
	group		rate	organize	intervene
	illustrate		weigh	outline	make
	judge			plan	manage
	observe			question	originate
	order			test	propose
	report				simulate solve
					support test
					validate

	represent research review rewrite show				
--	--	--	--	--	--



**HSC PART II EXAMINATION**  
**MARKS BREAKUP GRID FOR EXAMINATION 2024**

**GROUP: PRE-MEDICAL-II**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
PHYSICS	85	15	100
CHEMISTRY	85	15	100
BOTANY	45	7	52
ZOOLOGY	40	8	48
<b>TOTAL</b>	<b>505</b>	<b>45</b>	<b>550</b>

**GROUP: PRE-ENGINEERING-II**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
PHYSICS	85	15	100
CHEMISTRY	85	15	100
MATHEMATICS	100	--	100
<b>TOTAL</b>	<b>520</b>	<b>30</b>	<b>550</b>

**GROUP: COMPUTER SCIENCE/ GENERAL SCIENCE**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
PHYSICS	85	15	100
COMPUTER SCIENCE	75	25	100
MATHEMATICS	100	--	100
<b>TOTAL</b>	<b>510</b>	<b>40</b>	<b>550</b>

## **GROUP: COMMERCE-II (Private/Regular)**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
BANKING	75	-	75
COMMERCIAL GEOGRAPHY	75	-	75
ACCOUNTING	100	--	100
STATISTICS	50		50
<b>TOTAL</b>	<b>550</b>	<b>---</b>	<b>550</b>

## **GROUP: HUMANITIES-II (Private/Regular)**

**(Any Three Elective)**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
COMPUTER STUDIES	75	25	100
CIVICS	100		100
MATHEMATICS	100	-	100
SOCIOLOGY	100	--	100
ECONOMICS	100		100
EDUCATION	100		100
<b>TOTAL</b>	<b>550</b>	<b>---</b>	<b>550</b>



Class XII HIGHER SECONDARY SCHOOL CERTIFICATE EXAMINATION 2024  
Time Allowed: 15 minutes SUBJECT: BUSINESS STATISTICS

Q1: SECTION "A" Marks 10

Note: Attempt all question from this section. Each question carries one mark

- The data collected form a magazine is called \_\_\_\_\_ data  
a. Primary                      b. Tertiary                      c. Secondary                      d. none of these
- A \_\_\_\_\_ describes a characteristic of a population.  
a. Sample                      b. variable                      c. parameter                      d. none of these
- If width of each class interval is 10 and the No. of classes is 6, then Range would be:  
a. 16                      b. 60                      c. 66                      d. 600
- The sum of all relative frequencies should be equal to:  
a. 1                      b. 100                      c. 10                      d. 0.1

5. To draw a pie diagram for the following table, the angle of the sector of Category D will be \_\_\_\_\_

Category	A	B	C	D	E
Frequency	5	8	3	10	4

- a.  $120^\circ$                       b.  $180^\circ$                       c.  $360^\circ$                       d.  $100^\circ$
- If a mean of data of 50 observations is 400, then  $\sum x$  is equal to  
a. 1000                      b. 10,000                      c. 30,000                      d. 20,000
- The price relatives obtained by chain base method are called \_\_\_\_\_  
a. Value relatives                      b. quantity relatives                      c. supply relatives                      d. link relatives
- If Laspeyre's Price Index i.e.,  $P_{01}=140.65$ , and  $\sum P_0Q_0 = 95$ , then  $\sum P_1Q_0 =$  \_\_\_\_\_  
a. 133.61                      b. 100                      c. 270.16                      d. 166.66
- In how many ways can 5 women be seated at a salon in a row having 4 seats?  
a. 60                      b. 120                      c. 20                      d. 100
- A coin is tossed two times what is the probability of getting two tails?  
a.  $\frac{1}{2}$                       b.  $\frac{1}{10}$                       c.  $\frac{2}{4}$                       d.  $\frac{1}{4}$

Total Time : 2 hours  
Total Marks: 50

Class XII  
Time 1 hour 45 minutes

HIGHER SECONDARY SCHOOL CERTIFICATE EXAMINATION 2024  
SUBJECT: BUSINESS STATISTICS SECTION "B" AND SECTION "C"  
SECTION "B" SHORT ANSWER QUESTIONS

Total Marks 40  
Marks 20

Q2. Answer any five questions. All Questions carry equal marks:

- i. Explain the methods of collection of Primary Data.
- ii. Following is a set of test scores in Business Statistics. Construct a frequency distribution for this data.

40	28	26	48	39
42	37	40	41	34
25	41	43	31	27
30	39	27	32	33
32	35	26	46	47

- iii. Draw a Frequency Curve for the following frequency distribution

C.I	3-5	6-8	9-11	12-14	15-17	Total
f	1	8	12	6	3	30

- iv. The daily wages of 25 Electricians are as follows:

Daily wages in Rs. (x)	500	550	600	700	800	1000
No. of Electricians (f)	5	8	2	4	2	4

- a. Find average earnings from the following data.
- b. Also find the mean of y if  $y = 4x - 150$
- v. From the table give below, use the data to calculate the index number of prices of all the years with reference to 2020 as the base year, using Fixed Base Method

Items	2020	2021	2022	2023
Rice	51	52	53	55
Wheat	62	65	68	70
Maize	36	40	45	60
Sugar	42	55	58	60

- vi. A pair of dice is rolled once. What is the probability of getting:
  - a. A total of 10
  - b. A total of 4

- vii. From the data given below, calculate the index number of prices for all three years with reference to 2018 as the base year, using simple aggregative method.

Year	Price		
	Tea	Coffee	Cold Drink
2018	50	90	65
2019	55	95	70
2020	56	100	72
2021	58	100	75

- viii. Eight players of Pakistan's Football team can play in any of the six forward line positions. In how many ways can these be filled.

**SECTION "C" DETAILED ANSWER QUESTIONS**

**Marks 20**

**Note: Attempt any two questions from the following. All questions carry equal marks**

Q3. Find the probability:

- (i) Two cards are drawn in succession from a deck of 52 playing cards without replacement. What is the probability that both cards are Hearts?
- (ii) A dice is thrown two times. Find the probability of getting 6 on the first throw and an even number on the second throw.

Q4. The prices and quantities of four commodities for the year 2021 and 2022 are as under:

Commodity	Price		Quantity	
	2021	2022	2021	2022
Washing Powder	130	160	70	80
Soap	60	70	80	90
Washing liquid	170	200	90	100
Shampoo	150	220	100	110

Compute the Index numbers of the year 2022 by using the following:

- i. Laspeyre's Index Number
- ii. Paasche's Index Number
- iii. Fisher's Index Number.

Q5. Consider the following data

22	24	27	16	23	28	21	16	27	22
18	17	26	16	24	18	18	24	16	21
28	21	16	27	22	15	22	24	17	15
26	16	24	18	21	27	16	26	17	26

- a. Develop a frequency distribution using classes of 15-17, 18-20, 21-23, 24-26, 27-29
- b. Develop a Relative Frequency Distribution
- c. Develop a Percentage Frequency Distribution
- d. Find Class Boundaries and Mid value
- e. Develop Cumulative Frequency Distribution for 'Less than' and 'More than'

**END OF PAPER**