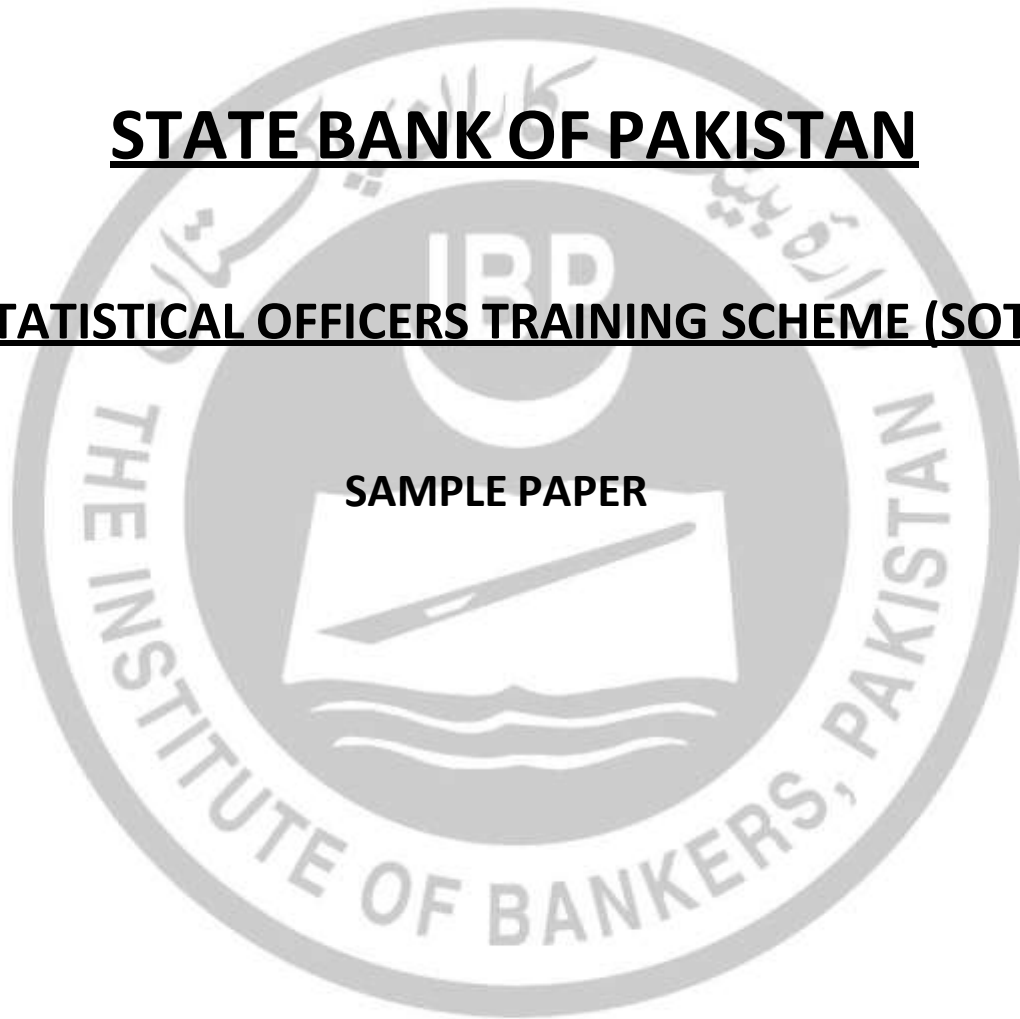


STATE BANK OF PAKISTAN

STATISTICAL OFFICERS TRAINING SCHEME (SOTS)

SAMPLE PAPER



ENGLISH

Read the passage carefully and answer questions 1-2

Some interesting information has been produced from a year-long analysis carried out on mobile phone network. It might be useful for epidemiologists and social scientists. It might shed light on how rumors are spread via social networks.

Researchers developed a link between a pair of phone users, on the basis of total time spent talking to each other. Strong links exist between members of same social group, whereas weak links join members from different social groups.

A dramatically differential effect was observed when researchers started removing links in the network whether starting with the strongest or with the weakest. It was surprising to them that removing strong links had little effect on overall structure of the network. On the other hand, removing weak links broke the network into a series of remote islands, with individual users connected to a small number of other phone users.

Researchers thus hypothesized that weak links are more significant in maintaining wider social network. If you lose a contact with casual acquaintances, there are more chances that your social circle may split but if you stop talking to your sister, there will be less visible impact on the structure of your social network.

- Q1. The passage offers support for which of the following statements?
- A. Strong links are less significant than weak links.
 - B. Face-to-face communication is similar to communication via phone.
 - C. Phone network patterns are considered useful for social scientists by some people.
 - D. Geographically close individuals have strong links.
- Q2. In the last paragraph the author is trying to:
- A. Emphasize the effectiveness of current research.
 - B. Get more specific to enrich the reader's understanding.
 - C. Strengthen the researchers' inferences.
 - D. Support his argument to make it more plausible.

-
- Q3. Though the waste of time and the expenditure on fashion is very large, yet fashions have come to stay. They will not go, come what may. However strong efforts are required to displace the excessive craze of fashion from the mind of youngsters.

The passage best supports the statement that:

- A. Fashion is the need of the day.
- B. Excessive craze for fashion is detrimental to one's personality.
- C. The craze for fashion to be done away so as not to let down the constructive mental development.
- D. Work and other activities should be valued more than outward appearance.

Q4. One _____ the new scheme is that it might actually _____ just those applicants that it was intended to encourage:

- A. attraction of – scare
- B. problem with – induce
- C. drawback of – daunt
- D. highlight of – stimulate

Q5. Select the correct ANTONYM (opposite) for the given word:

CLUE

- A. Key
- B. Indication
- C. Question
- D. Trace

Q6. Select the correct SYNONYM (same or nearly the same meaning) for the given word:

SPLENDID

- A. Common
- B. Normal
- C. Ordinary
- D. Excellent

Q7. Select the correct explanation for the IDIOM (figurative meaning) from the given options:

BAG OF BONES

- A. An extremely aggressive person
- B. An extremely sensitive person
- C. An extremely thin person
- D. An extremely depressed person

ANALYTICAL SKILLS/GENERAL KNOWLEDGE

Q8. Analyze the relation between the words and select the correct option that matches with the relation:

TAILOR: SUIT

- A. Scheme: agent
- B. Editor: manuscript
- C. Mention: opinion
- D. Implode: building

Q9. The average height of five boys in a class is 22.994 inches. If the heights of four boys are 6.45, 11.70, 12.35, 75.28 inches, find the height of fifth boy:

- A. 15.79 inches
- B. 20.25 inches
- C. 9.19 inches
- D. 12.50 inches

Q10. Pakistan has its longest border with:

- A. China
- B. India
- C. Iran
- D. Afghanistan

STATISTICS

Q11. Grade point average (GPA) is an example of:

- A. Discrete Variable
- B. Continuous Variable
- C. Qualitative Variable
- D. Random Variable

Q12. Binomial distribution helps in determining the probability of:

- A. Exactly k successes in n trials
- B. At least k successes in n trials
- C. kth success on nth trial
- D. (k-1) successes in n trials

Q13. The least square estimator of θ , for the model $Y = X\theta + \varepsilon$, under the conditions $E(\varepsilon) = 0$ and $V(\varepsilon) = \sigma^2 I_n$ is:

- A. $(X'X)XY$
- B. $(X'X)'XY$
- C. $(X'X)^2XY$
- D. $(X'X)^{-1}XY$

Q14. The coefficient of rank correlation r is given as $1 - \left[\frac{\sum_{i=1}^n d_i^2}{K} \right]$. K will therefore be:

- A. $n(n^2-1)$
- B. $n^2(n-1)$
- C. $n^3(n^2-1)$
- D. $n(n+1)$

Q15. A set of elements taken from a larger population according to certain rules is called:

- A. Sample
- B. Statistic
- C. Data
- D. Parameter

Q16. If variance of a random variable x is $V(x) = 6$, then $V(4x-5)$ will be:

- A. 24
- B. 21
- C. 91
- D. 96

Q17. The advertising firm asked a sample of 1,960 consumers to try a newly developed product by Boston Market. Of the 1,960 sampled, 1,176 said they would purchase the dinner if it is marketed. On the basis of the sample how many consumers will purchase the product?

- A. 60 percent
- B. 40 percent
- C. 10 percent
- D. 50 percent

Q18. The sum of the deviations of each value from the mean is:

- A. Equal to 1
- B. Equal to 0
- C. Greater than 1
- D. Less than 1

Q19. As the strength of a linear relationship between two variables increases, the correlation coefficient _____ and the standard error of the estimate _____.

- A. increases, decreases
- B. decreases, increases
- C. increases, increases
- D. decreases, decreases

Q20. Method of calculating skewness which is based on positions of quartiles and median in a distribution is called:

- A. Gary's coefficient of skewness
- B. Sharma's coefficient of skewness
- C. Bowley's coefficient of skewness
- D. Pearson's coefficient of skewness

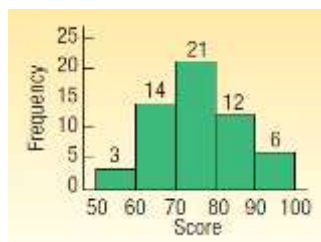
Q21. The Factor Analysis model explains the _____ of the variables exactly.

- A. modality
- B. skewness
- C. averages
- D. correlation

Q22. If A and B are two independent events with probabilities, $P(A) = 0.50$ and $P(B) = 0.30$, then probability that either of them will occur will be

- A. 0.615
- B. 0.750
- C. 0.150
- D. 0.450

Question 23 and 24 are based on the following histogram. It shows the scores on the first exam for a statistics class.



Q23. How many students took the exam?

- A. 56
- B. 25
- C. 21
- D. 100

Q24. What is the class interval?

- A. 5
- B. 10
- C. 15
- D. 20

Q25. The probability of rejecting the null hypothesis when it is true is called:

- A. Level of significance
- B. Type I error
- C. Type II error
- D. Confidence Interval

X --- END OF PAPER --- X

Disclaimer: The questions provided in the sample are for demonstration purpose only in order to acquaint the candidate with the paper pattern. The number of questions, complexity and depth of coverage may vary in the actual examination.

ANSWERS

Question Number	Answer	Question Number	Answer
1	C	14	A
2	B	15	A
3	C	16	D
4	C	17	A
5	C	18	B
6	D	19	A
7	C	20	C
8	B	21	D
9	C	22	C
10	B	23	A
11	B	24	B
12	A	25	A
13	D		

