THE INSTITUTE OF CHARTERED ACCOUNTANTS OF PAKISTAN

EXAMINERS' COMMENTS

SUBJECT	SESSION
Quantitative Methods	Foundation - Autumn 2007

General:

Although the result was about 54%, it could have been better as most of the students who appeared in the paper had secured good marks in the HSC examinations. However, the focus of study seems to be on remembering the formulas rather than trying to understand the concept. Thus, the straightforward questions were done well, but the questions requiring some thinking were performed poorly.

Question-wise comments are given below:

Q.1 (a) This was a very easy question in which many students got full marks. However, some students tried to mark down the price by 30% in one step instead of doing so in two steps as was required in the question.

(b) This was also an easy question in which many students got full marks. The common mistakes were as follows:

- Application of incorrect formula
- One of the root was computed as $\frac{9}{11}$ instead of $-\frac{9}{11}$

Q.2 The question had two situations called option (1) and option (2). Option (1) was based on arithmetic progression and was attempted well by most of the students. Option (2) was based on geometric progression but many students applied the formula for arithmetic progression, taking the common difference, d=60 (1200 x 5%).

Q.3 (a) This question relating to promissory note was not attempted well by most of the students. They were generally able to compute the maturity value of Rs. 545,000/- correctly. However, for finding the discounted value, most of them used the formula $P(1-it)$ instead of $\frac{P}{1+it}$.

Apart from this, many students could not understand the question and made the following types of errors:

- took t=0.75 to find the maturity value instead of t=1
- took t=0.75 to find the discounted value instead of t=0.25
- took t=12 i.e. in months instead of years.

(b) In this question, the students were required to calculate the future value of two streams of investment i.e.

- A one time investment of Rs. 100,000 at year 0
- An annual investment of Rs. 40,000 from year 1 to year 10.

The following types of mistakes were generally committed:

(i) The same formula was used for Rs.100,000 as was used for the annuity of Rs. 40,000.
(ii) The interest on Rs. 100,000 was ignored.

Q.4 (a) Most of the students knew that marginal cost function is the derivative of the total cost function and gave correct answers.

(b) Majority of the candidates correctly calculated the average cost of 1000 units by either of the following methods:

(i) Arrived at the average cost function by dividing Total Cost function with Q and applying Q = 1,000 in the average cost function.

Or

(ii) Calculating total cost of 1,000 units by applying Q=1,000 in the Total Cost function and thereafter dividing the Total Cost with 1,000.

However, many students made either of the following types of mistakes:

(i) Applied Q = 1,000 in the marginal cost function
(ii) Divided Marginal Cost function by Q for arriving at the average cost function.

(c) The cost of the sixth batch could have been calculated by carrying out the following steps:

(i) Determining the total cost of first 5 batches (250 units) by applying Q = 250 in the Total Cost Function.
(ii) Determining the total cost of first 6 batches (300 units) by applying Q = 300 in the Total Cost Function.
(iii) Deducting the total cost of 250 units from the total cost of 300 units.

Very few of the students were able to understand the concept and the majority failed to attempt this part in a proper way.

Q.5 A large number of students were able to do this question correctly by applying the quotient rule of differentiation. However, many students could not differentiate between $\sqrt{2x} = (2x)^{\frac{1}{2}}$ and $2x^{\frac{1}{2}}$. This type of mistake is not expected from the students at this level.

Q.6 (a) This part of the question was well attempted and a large number of the students secured full marks.

(b) The question was easy and required three steps as follows:

(i) Determine the overhead matrix by multiplying labour cost matrix (Y) with 0.2
(ii) Determine the total cost matrix by adding the matrix X,Y and the overhead matrix.
(iii) Multiplying the total cost matrix by 1.25 to arrive at the Sales Matrix.

Q.7 (a) Those students who read the question carefully and knew the basic rules, solved the question easily and gained full marks.

(b) It was a straightforward questions and most of the students secured full marks. But surprisingly there were few students who had memorized the formulas but did not know the difference between Σfx^2 and $(\Sigma fx)^2$. Obviously, such students should not hope to pass this paper.

(c) Many students did this part correctly, while a few applied incorrect formulas.

Q.8 Here again the data as well as the formulas involved were quiet straightforward. However, conceptual mistakes like the one referred to in the comments related to question 7 were found in this question in abundance. A number of mistakes, both clerical as well as conceptual were also witnessed in simplification of the formulas.

Q.9 (a) It was a very simple question. The students generally failed to understand that what was required was the calculation of weighted average. Many of them skipped it altogether. Only a limited number could do it correctly.

(b) Very few students seemed to know the concept related to box and whisker diagrams. They comprehended the data in different ways mostly based on guess work and gave different types of answers with very little success.

Q.10 (a) Many students performed well in this part. Most of them were able to identify that the total possible out comes were 36. Mistakes were usually made in ascertaining the successful outcomes. Most of those who listed successful outcomes individually were able to arrive at the correct answer. Those students who used the formula P (AUB) = P(A) + P(B) – (A∩B) ended up calculating P(A∩B). Many others calculated the answer as P (A) + P (B) only.

(b) This question was also attempted well by most of the students. Some students were unable to find the correct mean, but were able to apply the subsequent formulas correctly. One of the common mistake was that for finding the probability, many used the formula "1- {P(0) – P(1) – P(2) – P(3)}" instead of "1- {P(0) – P(1) – P(2)}".

(c) Many of the students who knew the concept and had studied thoroughly were able to gain full marks in this question also while in the remaining cases, the following types of mistakes were generally seen:

(i) t-test was used instead of Z-test

(ii) The formula $z = \frac{\bar{x} - \mu}{\sigma}$ was used instead of $\frac{\bar{x} - \mu}{\sigma\sqrt{n}}$

Q.11 (a) This was a simple question on probability and many students got full marks. Many of them were able to find the value of $z = 0.8$ correctly, but made errors in subsequent steps. Many of them calculated the area under the curve as 0.5-0.2881 instead of 0.5+0.2881 while many others simply calculated the probability as 0.2881.

(b) The concepts of point estimate and standard error were tested after a considerable period of time and therefore the performance was far from satisfactory. A large number of students did not attempt the question altogether. Many of them were not conversant with point estimate (p) which was equal to 0.5005 i.e. 12012/24000. Consequently they used $p = 0.5$ while determining the standard error and the confidence interval. As usual, very few could interpret the results with any degree of success.

(THE END)