COMSATS University Islamabad
Attock Campus

Department of Mathematics

Quiz/Assignment # 4

Instructions: (one must follow the instructions)

- Please name the PDF as **qa4-mth604-xyz**, where xyz is last three digits of your registration number (e.g. if your registration number is **fa20-rmt-051**, then name the as **qa4-mth604-051**) before submission.
- Similarity of a solution with other students may reduce your marks.
- Please make sure that the PDF is good before sending.
- Email PDF at **atiq+mth604@cuiatk.edu.pk** (any email address can be used for sending).
- Send email only one time.

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- : You are not permitted to share your solutions with others. This will reduce your marks. In any case; late submission has zero credit :-

Question 1:
Write the definitions of the followings:
  a) Neutral fixed point
  b) Closed ball

Question 2:
State and prove repelling fixed-point theorem.

Question 3:
Suppose α be a last two digits of your registration number (e.g. if your registration number is **fa20-rmt-051**, then $\alpha = 51$.)

Consider a metric d defined on set $\mathbb{R}$ as follows:

$$d(x, y) = \begin{cases} 0, & x = y, \\ \alpha, & x \neq y. \end{cases}$$

Then find $B(10;10)$.

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