Behavioral Research and Experiment Design 2025
Quiz 2
Time: 1 Hour
Total Marks: 20

1. You have time travelled back to the dreaded times of COVID19 (for some reason) and you are required to conduct an experiment. However, due to the entire world being under lockdown, you are forced to conduct your experiments online. Define and mention three hardware and software constraints you would have to keep in mind so that your data is not confounded. (3M)

2. In a recent incident, researchers Emil Kirkegaard and Julius Daugbjerg Bjerrekær collected and released a dataset containing profile data from approximately 70,000 users of the online dating site OkCupid without obtaining their permission. This action has raised ethical concerns within the research community. The released data includes usernames, ages, gender, religion, personality traits, and answers to personal questions used for matchmaking. While the data dump did not reveal real names, it has the potential to compromise users' identities through various means, such as usernames, demographics, and location. The researchers argue that the data was publicly available on OkCupid and thus did not require informed consent. However, this has sparked a debate about the ethics of using such data in research.Analyse the ethical issues surrounding the release of the OkCupid dataset by Emil Kirkegaard and Julius Daugbjerg Bjerrekær, considering the relevant ethical guidelines and principles. In your response, address the following points:
a. Explain the role of an Institutional Review Board (IRB) in ensuring ethical research involving human participants.(1M)
b. Identify and explain the specific ethical principles violated by the researchers in this case.(2M)
c. Discuss the potential harm and risks associated with the release of this dataset, considering the possibility of user identities being exposed. (2M)

3. Define a randomised controlled trial (RCT) and discuss the advantages of RCT design compared to other experimental methodologies in behavioural research. (3M)

4. Explain what is experience sampling and the advantages and disadvantages of using technology in experience sampling research. Provide examples of technological tools that can be employed. (2M)

5. Explain the difference between Naturalistic research and Ecological Validity with appropriate examples.(2M)

6.Define the Central Limit Theorem. A population has a bimodal distribution with two peaks around $\mu_1 = 20$ and $\mu_2 = 50$. If you take many samples from this population, what will the distribution of the sample mean look like? Justify your reasons. (3M)

7. State whether the following hypotheses are one-tailed or two-tailed.(2M)

a) There will be a difference in stress levels between men and women.

b) Students who meditate daily will have higher concentration levels than those who do not.

c) There will be a significant relationship between age and reaction time.

d) Participants who receive positive feedback will perform better than those who receive negative feedback.