

## Health Analytics Exam

**Question 1.** Describe and give an example of structured, semi-structured and unstructured data identified in Churi, P et al.

**Question 2.** What kind of questions do the following type of analytics look at? Give an example of each.

- Descriptive Analytics
- Diagnostic Analytics
- Predictive analytics

**Question 3.** Mention 2 best practices for data collection.

**Question 4.** Mention 2 ways in which you would clean this dataset.

Patient Name	Age	Gender
A	30	M
A	30	M
B	20	F
C	60	F
D	34	F
E	33	M
F	22	M
G	35	Null
H	40	M
ECEC	52	M

**Question 5.** What statistical measure would you use to answer the below question

- How many patients were hospitalized last week?

**Question 6.** Mention 2 of the recommendations made for improving the PM Jay/Ayushman Bharat IT 1.0 landscape?

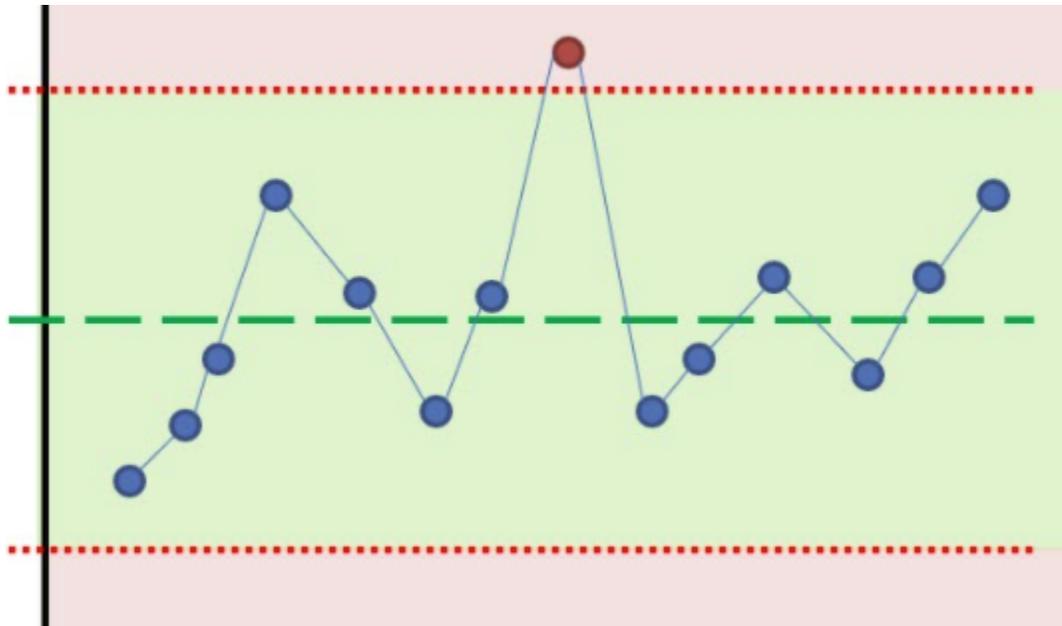
**Question 7.** Describe the terms 'Algorithm' and 'Machine Learning' ? What are the three types of machine learning algorithms?

**Question 8.** Consider a facility that was observing longer than desired lengths of hospital stay and decided to implement a new streamlined patient discharge protocol. Prior to the implementation of the protocol, three months of baseline data showed an average length of hospital stay of 4.54 days. Following the implementation of the new protocol, the results were

evaluated and the three- month post-implementation average length of hospital stay was 3.56 days.

What statistical testing can be used to check whether these results are repeatable? What would be the null and alternative hypotheses in this case?

**Question 9.** In the below Statistical Process Control chart, What point indicates a special cause and why?



**Question 10:** Describe three factors from the Social Determinants of health WHO Framework.

**Question 11.** With reference to our discussion in class, Describe three goals of data visualization.

**Question 12.** Among the below alternatives, list the comparator, and mention the type of analysis you would undertake.

## Treatment options for obesity

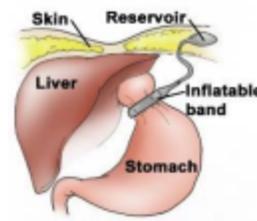
- 1. Life style program



- 2. Pharmacotherapy



- 3. Bariatric surgery



15

**Question 13.** Name 3 possible challenges that we could see in the development of Artificial Intelligence tools and applications.

**Question 14.** Mention the kind of relationship we could witness in the below dataset between any two variables. How would you study this relationship?

age	Sex	BMI	Children	Region	Expenses
19	female	27.9	yes	southwest	16884.92
18	male	33.8	no	southeast	1725.55
28	male	33	no	southeast	4449.46
33	male	22.7	no	northwest	21984.47
32	male	28.9	no	northwest	3866.86
31	female	25.7	no	southeast	3756.62

**Question 15.** With reference to our discussion in class, how would the value of good quality data vary with regards to the below stakeholders?

- Frontline workers
- Data Stewards
- ML Developers

