Exam Date & Time: 27-May-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Biostatistics and Research Methodology (Theory) [PHA-BP801T-S2]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) What for the FINER principles used?

1)	Journal Selection		2)	Selection of research topic		3)	Literature Search		4)	Making a report	

(1)

2) Which of the following do not belong to a journal?

1)	DOI		2)	ISBN		3)	Journal Impact Factor		4)	CiteScore	

(1)

3) What for SMART abbreviation is used?

1)	For making conclusions		2)	Framing Objectives		3)	Suitable statistical method		4)	Quality of good journal	

(1)

4) Which organization/ company created and now maintains Scopus Database?

1)	Nature		2)	Elsevier		3)	Hindawi		4)	PubMed	

(1)

5) Which of the following suits best for "Ghost Author."

1)	Some instances, ghost author can be a Gift Author		2)	Some instances, ghost author can be a Guest Author		3)	Ghost author's name will not be there in publication		4)	Ghost author is like a Ghost and threatens all other authors	

(1)

6) Which one of the following is the last step of a clinical trial process?

1)	Investigator selection and joining		2)	Patient recruitment and commencement		3)	Statistical analysis and intepretation		4)	Data filing and registration	

(1)

7) What is meant by a blind subjects?

1)	The subjects do not know which study treatment they receive		2)	The subjects are injected with placebo		3)	The subjects are not given any treatment		4)	Signed document of the recruited subject for the clinical trial procedures	

(1)

				and active doses								

8) What do term the phenomenon that occurs when an experimental group gets better simply because they are being giving a pill and this leads them to expect to get better? (1)

1)	Domino effect		2)	Butterfly effect		3)	Placebo effect		4)	Expectancy effect		

9) Those with more complex psychopathologies are likely to be excluded from treatment outcome studies and so denied access to the treatment programme associated with the study. This is referred to as: (1)

1)	Simple diagnosis criteria		2)	A no-treatment control condition		3)	Narrow inclusion criteria		4)	Complex exclusion criteria		

10) Choose the correct chronological ordering of the following documents: (1)

1)	Nuremberg Code, Declaration of Helsinki, The Belmont Report		2)	The Belmont Report, Declaration of Helsinki, Nuremberg Code		3)	Nuremberg Code, The Belmont Report, Declaration of Helsinki		4)	Declaration of Helsinki, Nuremberg Code, The Belmont Report		

11) Informed consent include all of the following components EXCEPT (1)

1)	voluntariness		2)	fidelity		3)	comprehension		4)	information		

12) The linear regression analysis is used (1)

1)	To predict the significant difference between two variables, in normally distributed data.		2)	To predict the correlation between two variables, in normally distributed data.		3)	To predict the value of one variable based upon other		4)	To predict the correlation between two variables, in distribution-free data		

13) Which type of correlation is expected between height and pulse rate. (1)

1)	Moderately Negative Correlation		2)	Perfect Negative Correlation		3)	Perfect Positive Correlation		4)	No Correlation		

14) _____ is not a nominal type of data. (1)

1)	Gender		2)	Religion		3)	Pain score		4)	Blood group		

15) Which one of the following statistical tests can be used to find the association between two variables? (1)

1)	Paired t-test		2)	Un-paired t-test		3)	Wilcoxon rank-sum test		4)	Chi-square test	

16) Select an in-correct statement:

1)	Variance is used to find the significance level in the Chi-square test		2)	Median is considered to be part of resistant statistics.		3)	Modes can be multiples.		4)	Mean gets distorted in presence of extreme values.		(1)

17) What is the p of the number of female children with a dark complexion, if 40/100 pregnancies delivered fair children?

(1)

1)	0.4		2)	0.2		3)	0.03		4)	0.3	

18) Among an office staff members, what is the relative variation between height and body weight, if Mean height = 260 cm and SD=30, whereas Mean body weight = 75kg with SD = 15.

1)	Weight shows 3.46 times more variation as compared with height		2)	Height shows 3.46 times more variation as compared with weight		3)	Height shows 1.7 times greater variation as compared with weight		4)	Weight shows a 1.7 times greater variation as compared with height		(1)

19) Which is NOT true for qualitative data?

1)	Takes only specified number of values		2)	There is only one variable		3)	They usually do not follow any distribution		4)	They are continuous data		(1)

20) Select the correct option for Gaussian distribution.

1)	Mean ≠ Median ≠ Mode.		2)	Mean ± 2.58 SD limits include 95 % of observations		3)	Mean ± 1.96 SD limits include 95 % of observations		4)	Mean ± 1 SD limits include 95 % of observations		(1)

II Long Answers

Answer all the questions.

1) A compound was developed against COX enzyme to reduce inflammation. Following are the data obtained after performing carrageenan-induced rat paw edema in rats.

Parameter: Oedema volume (ml) at 3 hr.

(10)

Vehicle (n=6): 1.86, 1.8, 1.8, 2.94, 2.96, 2.62

Diclofenac(n=5): 0.9, 0.85, 0.73, 0.89, 0.78

Test compound (n=7): 2, 1, 1.6, 0.98, 0.6, 0.8, 0.9

Apply a suitable statistical test to analyze, summarize, and make an inference on the type of pharmacological activity of the treatments. (Given critical ratio: 6.36, p=0.01

2) With suitable exampoles, demonstrate the different types of possible correlations between two continuous variables. Discuss three methods to find the estimated probability of correlation and its significance. (10)

III Short Answers

Answer all the questions.

1) Discuss the methods and importance of organizing literature review. (5)

2) With a flow diagram, discuss the life cycle of a research manuscript. (5)

3) Define Biostatistics and discuss its applications in health sciences. (5)

4) With suitable examples, discuss the steps to perfom Kruskal-Wallis test. (5)

5) Describe the various measures of dispersion used in biostatistics with appropriate examples. (5)

6) Discuss the applications of Students's t-test. If, average plasma cholesterol levels of samples (n=20) is 240 mg/dl having SD of 20. Find out what would be the population mean for this sample mean? (given t= 2.080 at p=0.05). (5)

7) List the use of statistical software packages with a suitable example. (5)

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