

Seat No.: _____

SANKALCHAND PATEL UNIVERSITY
Ph.D. COURSE WORK EXAMINATION – SUMMER-2020

Subject Name: Research Methodology and Statistics

Subject Code: 1RI3000101

Date: / / 2020

Time: 2 Hrs.

Total Marks: 80

Instructions:

1. Attempt All Questions
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	Select Correct Answer for following MCQs				01 Marks each	40
1	Which of the following is not a type of research question?					
	A	Predicting an outcome	B	Evaluating a phenomenon		
	C	A hypothesis	D	Developing good practice		
2	Graphical and numerical methods are specialized process utilized in					
	A	Education Statistics	B	Descriptive Statistics		
	C	Business Statistics	D	Social Statistics		
3	The value of coefficient of correlation lies between					
	A	0 to -1	B	1 to -10		
	C	-1 to 1	D	0 to 1		
4	Which of the following is not a restricted random sampling technique?					
	A	Systemic sampling	B	Stratified sampling		
	C	Simple random sampling	D	Multistage sampling		
5	When the correlation coefficient, r , is close to one:					
	A	there is no relationship between the two variables	B	there is a strong linear relationship between the two variables		
	C	it is impossible to tell if there is a relationship between the two variables	D	the slope of the regression line will be close to one		
6	The essential qualities of a researcher are					
	A	Spirit of free enquiry	B	Reliance on observation and evidence		
	C	Systematization or theorizing of knowledge	D	All the above		
7	All cause non sampling errors except					
	A	Faulty tools of measurement	B	Defect in data collection		
	C	Non response	D	Inadequate sample		
8	Technological Gatekeeper is :					
	A	A process of transfer of technology	B	A method of technology assessment and evaluation		

	C	A formal method of giving current awareness service	D	An informal mechanism of keeping user informed of relevant development
9	Patent of addition can be filed by			
	A	Patentee	B	Inventor
	C	Both (a) and (b)	D	None of the above
10	A researcher divides his population into certain groups and fixes the size of the sample from each group. It is called..			
	A	Stratified sample	B	Cluster sample
	C	Quota sample	D	All of the above
11	In the process of conducting research ‘Formulation of Hypothesis’ is followed by			
	A	Collection of Data	B	Selection of Research Tools
	C	Statement of Objectives	D	Analysis of Data
12	The research antagonistic to ex-post facto research is			
	A	Experimental studies	B	Normative researches
	C	Library researches	D	All of the above
13	Literature review is not usually concerned with helping in:			
	A	subsequent data collection.	B	research instrument design
	C	objective setting	D	literary appreciation
14	Failing to reject the null hypothesis when it is false is:			
	A	alpha	B	Type I error
	C	beta	D	Type II error
15	Action research is a type of _____			
	A	Applied research	B	Quantity research
	C	Survey research	D	Population research
16	For doing external criticism (for establishing the authenticity of data) a researcher must verify			
	A	Style of prose writing of that period	B	The signature and handwriting of the author
	C	The paper and ink used in that period which is under study	D	All of the above
17	If you file provisional specification, the complete specification is required to be filed within			
	A	10 months	B	12 months
	C	18th months	D	24 months
18	Information is.....			
	A	Raw Data	B	Organized data
	C	Processed Data	D	Input data
19	The longitudinal approach of research deals with _____.			
	A	Horizontal researches	B	Long-term researches
	C	Short-term researches	D	None of the above
20	Which of the following is not the characteristic of a researcher?			

	A	He is objective	B	He is industrious and persistent on the trial of discovery
	C	He is a specialist rather than a generalist	D	He is not versatile in his interest and even in his native abilities
21	The law governing registered trade marks can be found in which Act?			
	A	The Registered Trade Marks Act 1994.	B	Copyright, Designs and Patents Act 1988
	C	The Trade Marks Act 1994.	D	The Intellectual Property Act 1994.
22	The abscissa of the point of intersection of both types (less than & more than) of cumulative frequency curves help in finding			
	A	mean	B	mode
	C	median	D	None of these
23	Standard error of mean defined as,			
	A	Standard deviation of the sampling distribution of mean	B	Average of sampling distribution of mean
	C	Inter-Quartile range of sampling distribution of means	D	Correlation co-efficient between the sampling distribution of mean
24	To apply for a patent, an inventor must:			
	A	State the date on which the invention was first "reduced to practice"	B	Demonstrate that their invention works
	C	File an application at a patent office which must comply with formal and technical requirements	D	Draft the full specification of the patent they seek, which cannot be later amended
25	The algebraic sum of the deviations of a frequency distribution from its mean is always,			
	A	greater than zero	B	a non-zero number
	C	less than zero	D	zero
26	If the sample size increases the sampling error			
	A	Increases	B	Decreases
	C	Remains constant	D	None of the above
27	Information provided in your essay must be referenced in all of the following cases except:			
	A	When the information comes from an e-mail or phone call.	B	When the information describes common knowledge.
	C	When the information involves an interpretation peculiar to the author from whose work you are drawing.	D	When the information or idea that you are recording is disputed within the discipline
28	Paraphrasing too closely to the original text, even if you do credit the source, is still considered as plagiarism because:			
	A	By changing a few words or the order of the original words, you have changed the author's exact words.	B	By not providing the exact words of the author in their entirety, you are attributing to the author some words that he/she did not write.
	C	You must never use the words of others when you are using their ideas	D	You have failed to indicate, by means of direct quotation marks, which are the exact words of the original.

29	As per Indian Copyright Law, Fair use means			
	A	Use for review	B	Use for research
	C	Use for non-commercial use	D	All the above
30	Which of the following statistical concepts is used to test differences in the means for more than two independent populations?			
	A	Regression analysis	B	Confidence interval
	C	Analysis of variance	D	Multiple t test
31	Which one of the following could not be registered as a trade mark?			
	A	The mark is made up of letters and numbers.	B	The mark is made up of a symbol with no words or letters.
	C	The mark is an image.	D	The mark represents the natural or technical shape of the goods.
32	A patent will be invalid for lack of novelty if:			
	A	A video describing how to make the product claimed was published on the internet prior to the priority date	B	A description of the product (in the case of a product claim) was published before the priority date
	C	The process claimed was carried on commercially before the priority date	D	Products falling within the claim were sold to the public before the priority date
33	You are guilty of plagiarism if you:			
	A	Make use of the works of others to gather information	B	Use the work of another and misrepresent it as your own
	C	Examine the ideas and arguments of others to help you shape your own thoughts or views on a particular issue.	D	Make use of the works of others to support your own arguments
34	If correlation is not perfect, it is known as			
	A	Non-Linear correlation	B	Limited correlation
	C	Linear correlation	D	Perfect correlation
35	ANOVA tests use which of the following distributions?			
	A	Z	B	F
	C	T	D	Chi-square
36	You can infringe a patent by:			
	A	Making different products to the invention in order to research their technical effectiveness	B	Selling the main components of the product, together with instructions how to assemble it using commonly available fastening components such as nuts, bolts, cable-ties and so on
	C	Making a product for your own personal use	D	Publishing drawings of the product on your website
37	Which one of the following is a relative measure of dispersion			
	A	Variance	B	Standard deviation
	C	Co-efficient of variation	D	None of the above
38	In a two-way ANOVA, how many degrees of freedom are used for the error term?			

	A	$(r - 1)(c - 1)$	B	$(r - 1)$
	C	$rcn + 1$	D	$rc(n - 1)$
39	An invention claimed in a patent is obvious if:			
	A	The skilled person could, without undue burden, have developed the claimed invention	B	If the skilled person, working from a particular piece of prior art and bearing in mind common general knowledge, would have identified a problem to be solved and in solving it found the claimed invention
	C	Once the skilled person had been directed to come up with a solution to the problem solved by the invention, she would have found the claimed invention	D	The prior art contains a clear signpost to seek developments in the area of the invention
40	In a one-way ANOVA F test, the “among-group” variation is attributable to what source of variation?			
	A	Residual variation	B	Unexplained variation
	C	Experimental error	D	Treatment effect

Q.2	Answer following Questions (Any Four)			20
	(A)	What is the difference between Copyright, Patent and Trademark? Discuss trademark protection.		
	(B)	Briefly explain plagiarism and its consequences.		
	(C)	Discuss in details about research paper writing		
	(D)	Define Research. Discuss objectives and different types of research with suitable examples and its significance		
	(E)	What is literature review ? Discuss objectives & various sources of literature review.		
	(F)	Discuss sources for procurement research grants.		
Q.3	Answer following Questions (Any Two)			20
	(A)	Discuss in detail about research design		
	(B)	Briefly explain: (any four) 1) ANOVA 2) Kruskal-wallis test 3) Newman-Keuls test 4) Wilcoxon test 5) Dunnett's test		
	(C)	Briefly explain: (any two) 1) Techniques of documentation 2) Limitation and sources of error in research 3) Industry Institute Interaction		
