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Maximum : 100 marks

Time : 1 hour and 15 minutes

1. A method of data collection which is free from sampling errors?

- (A) Census Survey (B) Sample Survey
- (C) Quota Sampling (D) All of the above
- 2. The variance of the mean of a sample from a systematic sampling inflates if correlation between units in the sample is :

(A)	Positive		(B)	Negative	

- (C) Zero (D) All of the above
- 3. Which of the following statement is true for cluster sampling?
  - (A) Cluster sampling will be efficient if the variation between cluster means is as large as possible while variation within the clusters is as small as possible
  - (B) Cluster sampling will be efficient if the variation between cluster means is as small as possible white variation within the clusters is as large as possible
  - (C) Cluster sampling will be efficient if the variation between cluster means and within the clusters are as small as possible
  - (D) None of these
- 4. In classification, the data are arranged according to :
  - (A) Differences (B) Resemblance
  - (C) Ratios (D) All of the above
- 5. The heading of rows given in the first column of a table are called :
  - (A) Titles (B) Captions
  - (C) Stubs (D) Sub title
- 6. In exclusive and inclusive classifications, the data are classified according to :
  - (A) Class width (B) Mid value
  - (C) Frequency (D) Class intervals
- Α

- 7. Which of the following diagram is used to represent the monthly expenditure of different items consumed by a family?
  - (A) Histogram (B) Multiple Bar diagram
  - (C) Pie diagram (D) All of the above
- 8. Which measure of central tendency is most affected by extreme values?
  - (A) Arithmetic mean (B) Median
  - (C) Mode (D) All of the above
- 9. For a positive skewed distribution, the relation between mean, median and mode is :
  - (A) Mean > Mode > Median (B) Median > Mean > Mode
  - (C) Mean > Median > Mode (D) None of these
- **10.** The measures used to calculate the variation present among the observations in the unit of the variable is called The measures used to calculate the variation present among the observations in the unit of the variable is called Which measure is used to calculate the variation among observations in the unit of the variable?
  - (A) Coefficient of variation (B) Variance
  - (C) Coefficient of skewness (D) All of the above
- 11. If  $X \sim N(0,1)$  and  $Y = X^2$ , then Cov (X,Y) is :
  - (A) +1 (B) -1
  - (C) 0 (D) 0.5
- **12.** If most of the points lie in the first and third quadrants of a scatter diagram then coefficient of correlation is :
  - (A) Positive (B) Negative
  - (C) 0 (D) All of the above
- **13.** A measure which examines the association between a dependent variable and an independent variable after factoring out the effect of other independent variables is :
  - (A) Correlation coefficient (B) Multiple correlation coefficient
  - (C) Partial correlation coefficient (D) None of these
- 14. A measure used to study the possible presence of multicollinearity is:
  - (A) Durbin Watson statistic (B) Residual Plot
  - (C) Correlation matrix (D) All of the above

15.	Solutions called :	which satisfy the linear constraints a	and r	non-negativity conditions of a L.P.P. is
	(A)	Optimal solution	(B)	Feasible solution
	(C)	Unbounded solution	(D)	All of the above
16.	Maximum	a value of $x^2 + 2y^2$ subject to the constra	aint $x$	$y^{2} + y^{2} \le 1$ is :
	(A)	0	(B)	1
	(C)	2	(D)	None of these
17.	Moving av	verage method of fitting trend removes	the ef	fect of
	(A)	Cyclic variations	(B)	Irregular variations
	(C)	Long term variations	(D)	Short term variations
18.	A cycle in	a time series is the difference between	:	
	(A)	The end points of a convex portion		
	(B)	The mid points of a trough and the cr	$\mathbf{est}$	
	(C)	End points of a concave portion		
	(D)	None of these		
19.	The Price	quotations for consumer price index no	umber	s are collected from :
	(A)	Retailers	(B)	Wholesale dealers
	(C)	Government depots	(D)	All of the above
20.	The stand	ard number of births 10,000 originatin	g a lif	e table is called :
	(A)	Birth rate	(B)	Radix
	(C)	Cohort	(D)	All of the above
21.	Each of tw same of n	vo students tosses three unbiased coins umber of heads?	s. Wha	t is the probability that they obtain the
	(A)	1/16	(B)	3/16
	(C)	5/16	(D)	None of these
22.	If A an	A are two independent event	ts su	ch that $P(A) = 1/3, P(B) = 1/5$ and
	P(A   B) +	$P(B/A) = 2/3$ , then $P(A^C \cup B^C) =$		
	(A)	1/12	(B)	11/12
	(C)	10/12	(D)	5/12
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In a random arrangement of the letter of the word 'MATHEMATICS', the probability that all 23. the vowels come together is :

(A)	4/146	(B)	5/126
(C)	6/158	(D)	4/165

Let X and Y be two independent exponential random variables with means  $\frac{1}{2}$  and  $\frac{1}{4}$ , **24**. respectively. Then the distribution of min (X, Y) is :

- (A) Exponential with mean  $\frac{3}{4}$ (B) Exponential with mean 1
- (C) Exponential with mean 1/6 (D) None of these
- 25. If X is a uniform random variable defined over (0,5), the probability that the roots of the equation  $4a^2 + 4Xa + (X+2)$  are real is :

(A)	3/5	(B)	1/5
(C)	2/5	(D)	None of these

26. What is the expected number of failures preceding the first success in an infinite series of independent trials with constant probability p of success in each trial?

(A)	q/p	(B)	p/q
(C)	1/ <i>p</i>	(D)	1/q

- If X and Y are two binomial random variables with parameters (n, p) and (n, s) respectively. 27. If p < s, which of the following relation is true for *X* and *Y*?
  - (B)  $P(X \le x) \ge P(Y \le x)$ (A)  $P(X \le x) = P(Y \le x)$
  - (C)  $P(X \le x) \le P(Y \le x)$ (D) None of these

Which of the following statement is true for a Poisson random variable *X* with parameter *a*? 28.

- (A)  $E(X) = a E(X^2 + 1)$ (B)  $a E(X+1) = E(X^2)$
- (C)  $a E(X^2) = E(X)$
- For n > 4 and n < 30, the *t*-distribution is : 29.
  - Leptokurtic Mesokurtic (A) (B)
  - Platykurtic Unimodal (C) (D)

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(D) None of these

**30.** For a normal curve the Q.D, MD and SD are in the ratio :

(A) 5:7:6
(B) 2:4:9
(C) 2:3:4
(D) 10:12:15

31. If the variance of an estimator attains the C-R lower bound, the estimator is :

- (A) Most efficient (B) Consistent
- (C) Sufficient (D) All of the above

**32.** For a random sample  $X_1, X_2, ..., X_n$  from  $U(\theta, 2\theta)$ , the unbiased estimator of  $\theta$  is :

(A) Min  $X_i$ (B) Max  $X_i$ (C)  $\frac{1}{3}$ (Min  $X_i$  + Max  $X_i$ ) (D)  $\frac{1}{2}$ (Min  $X_i$  + Max  $X_i$ )

**33.** If  $X_1, X_2, ..., X_n$  is a random sample from  $N(0, \theta)$ . A complete statistic for  $\theta$  is :

- (A)  $X_1$  (B)  $X_1^2$
- (C)  $\overline{X}$  (D) All of the above

34. Degrees of freedom of a statistic is related to :

- (A) Number of observations in a set
- (B) Type 1 error
- (C) Number of independent observations in a set
- (D) None of these

**35.** Given a random sample  $X_1, X_2, ..., X_n$  from the distribution with density function  $f(x, \theta) = \frac{1+\theta}{(x+\theta)^2}, 1 \le x < \infty$ . A best critical region for testing the null hypothesis  $H_0: \theta = \theta_0$  against  $H_1: \theta > \theta_0$  is:

(A) 
$$\left\{ x : \frac{\overline{x}+1}{1+\theta} > 0.05 \right\}$$
 (B)  $\left\{ x : \frac{\overline{x}+1}{1+\theta} < 0.05 \right\}$   
(C)  $\left\{ x : \frac{\log \overline{x}+1}{1+\theta} > 0.05 \right\}$  (D) None of these

36. If  $p_1$  and  $p_2$  are not identical, then standard error of the difference of proportions  $\left(p_1-p_2\right)$  is :

(A) 
$$\sqrt{\frac{\hat{p}_1 \,\hat{q}_1 + \hat{p}_2 \,\hat{q}_2}{n_1 + n_2}}$$
 (B)  $\sqrt{\frac{\hat{p}_1 \,\hat{q}_1 + \hat{p}_2 \,\hat{q}_2}{n_1 \, n_2}}$   
(C)  $\sqrt{\frac{\hat{p}_1 \,\hat{q}_1}{n_1} + \frac{\hat{p}_2 \,\hat{q}_2}{n_2}}$  (D) None of these

37. The hypothesis that the population variance has a specified value can be tested by :

(A)	Chi-square test	(B)	F-test
(C)	t-test	(D)	All of the above

38. How will affect the power of a test if the size of the test is reduced?

(A)	Increases	(B)	Decreases
(C)	No change	(D)	All of the above

39. The assumption for testing the equality of several population means by F-test is :

- (A) Populations are correlated
- (B) Population variances are heterogeneous
- (C) Population variances are homogeneous
- (D) All of these
- **40**. For  $a \times b$  contingency table, the number of degrees of freedom equals :
  - (A) (a+b)(a-b)(B) (a+1)(b+1)
  - (C) (a-1)(b-1)(D) ab-2
- Match the following five year plan with their objectives : **41.** 
  - (i) Third Five year Plan
  - (ii) Fourth Five Year Plan
  - (iii) Fifth Five Year Plan
  - (iv) Ninth Five Year Plan
  - (A) (i)-(a); (ii)-(b); (iii)-(c); (iv)-(d)
  - (C) (i)-(d); (ii)-(c) ; (iii)-(a); (iv)-(b)

- Attainment of Self Reliance (a)
- Growth with Stability (b)
- a self-reliant (c) Make and self generating Economy
- Growth with social Justice (d) and Equality
- (B) (i)-(c); (ii)-(b); (iii)-(a); (iv)-(d)
- (D) (i)-(b); (ii)-(d); (iii)-(a); (iv)-(c)

- **42.** Which of the following with regard to the aims of the "The Methanol Economy Programme" initiated by NITI Aayog are correct?
  - (i) Reduce oil import bills
  - (ii) Reduce Green House Gases
  - (iii) Convert Indian coal reserves and municipal solid waste into methanol
  - (iv) Create New Jobs by setting up Methanol Plants
  - (A) Only Statement (i), (ii) and (iii) are correct
  - (B) Only Statements (i), (iii) and (iv) are correct
  - (C) All the statements are true
  - (D) NITI Aayog has not initiated a programme named as the Methanol Economy Proramme till date
- 43. Among the following who is not a member of the Governing Council of NITI Aayog :
  - (A) President, Government of India
  - (B) Prime Minister, Government of India
  - (C) Ex officio Members, NITI Aayog
  - (D) Chief Minister, Government of Kerala
- 44. Which of the following is/are not true about the recommendation made by the 15<sup>th</sup> Finance Commission?
  - (i) The share of the states in the sharable amount of taxes is increased from 41% to 45%
  - (ii) All states must constitute a State Finance Commission (SFC) on or before March 2024
  - (iii) The Professional Tax levied by the Local Governments may be kept unchanged for the next five years
  - (iv) The size of the grant to the local government can be 20% of the states share
  - (A) Statement (i) and (iii) are true (B) Statement (ii) and (iv) are true
  - (C) Only statement (ii) is true (D) All statements are False
- 45. The first State Finance Commission of Kerala Was constituted on :
  - (A) 23<sup>rd</sup> April 1994 (B) 23<sup>rd</sup> April 2004
  - (C) 1<sup>st</sup> April 1995 (D) 1<sup>st</sup> April 2005

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- **46.** The Special Purpose Vehicle (SPV) for implementation of major projects in Local Self Governments in Kerala :
  - (A) INVEST KERALA (B) KERALA DEVELOPMENT LTD
  - (C) ARDRAM KERALA (D) IMPACT KERALA
- **47.** Which among is not a part of the Document submitted to the parliament along with Budget speech by the Finance Minister?
  - (A) Statement of Income from Direct and Indirect taxes
  - (B) Annual Financial Statement (AFS)
  - (C) Output Outcome Monitoring Framework
  - (D) Demands for Grants (DG)
- **48.** The scheme associated with providing 'record of Rights' to the property owners in rural area by Government of India is :
  - (A) Mission Karmayogi (B) SVAMITVA Scheme
  - (C) Sahakar Mitra Scheme (D) Stand Up India Scheme
- 49. The first Scientific Attempt to Measure National Income of India in 1931 was made by :
  - (A) Vadia and Joshi (B) V. K. R. V. Rao
  - (C) Dadabhai Naoroji (D) Shah and Khambata
- **50.** Among the following, which are the schemes that are networked to provide "bare necessities" to a household by the Government of India :
  - (A) Swachh Bharat Mission, Atal Pension Yojana, Jal Jeevan Mission, Saubhagya Yojana
  - (B) Swachh Bharat Mission, Pradhan Mantri Vaya Vandana Yojana, Pradhan Mantri Mudra Yojana , Saubhagya Yojana
  - (C) Swachh Bharat Mission, Pradhan Mantri Awaas Yojana, Jal Jeevan Mission, Saubhagya Yojana
  - (D) Swachh Bharat Mission, Pradhan Mantri Awaas Yojana, Jan Suraksha Yojana, Pradhan Mantri Ujjwala Yojana
- **51.** Assume that a country produces only bread and it produced 2000 units of bread for the year 2010 at a price of Rs. 25 per bread. In 2011, the total amount of bread it produced increased to 2200 and the price was Rs.30 per bread. Taking 2010 as base year, what is the GDP deflator in percentage terms?
  - (A) 20% (B) 80%
  - (C) 100% (D) 120%

- 52. Ministry that is responsible for preparation of National Income Accounts in India :
  - (A) Ministry of Finance
  - (B) Ministry of Central Statistical and Program Implementation
  - (C) Ministry of National Income Accounting
  - (D) Ministry of Home Affairs
- **53.** Which of the following is not correct :
  - (A)  $NNP_{FC} = GDP_{MP} Depreciation + Net income from abroad Indirect Taxes + Subsidies$
  - (B)  $NDP_{MP} = NNP_{FC} Net$  income from abroad + Indirect tax subsidies
  - (C)  $NDP_{FC} = GNP_{FC} Depreciation + Net income from abroad Indirect tax + Subsidies$
  - (D)  $GDP_{MP} = NNP_{MP} Net income from abroad + Depreciation$
- **54.** Number of Public Sector Units under the Department of Industries and Commerce Government of Kerala for the year 2019-20 are :

(A)	32	(B)	42
(C)	52	(D)	62

**55.** As per the Population census of 2011, among the following district which has a lower literacy rate than the overall literacy rate of the state of Kerala :

(A)	Thiruvananthapuram	(B)	Kannur	

- (C) Kozhikode (D) Alappuzha
- **56.** Among the following sentences, choose the wrong one :
  - (A) Since Independence, Andaman and Nicobar Islands has shown highest increase in Sex ratio where Daman and Diu has shown largest decrease in sex ratio
  - (B) As per Census 2011, taking all states and Union territories of India, Puducherry and Kerala are the only region where sex ratio is more than 1000
  - (C) As per Census 2011, Child Sex ratio in all states and Union Territories of India are less than 1000
  - (D) The overall Sex ratio of India has been on an increase in every census since Independence

- **57.** Among the following, which is not one of the criteria used to measure deprivation in the Socio Economic and Caste Census of 2011 :
  - (A) Households with No able bodied members
  - (B) Female Headed households
  - (C) Household with only one room with no solid walls and roof
  - (D) Household with out a Sanitary Latrine
- **58.** According to the Economic survey of 2020-21,the highest rice and wheat producing state in India are :
  - (A) West Bengal and Uttar Pradesh (B) West Bengal and Punjab
  - (C) Uttar Pradesh and Madhya Pradesh (D) Uttar Pradesh and Punjab
- 59. Match the following related to Poverty estimation in India :
  - Mixed Reference Period (i) Working Group (a) VM Dandekar and R Rath **Calorie Norms** (ii) (b) Tendulkar Committee Poverty Line Rs. 972 in Rural Areas (iii) (c) and Rs. 1,407 in Urban Areas (iv) Rangarajan Committee Minimum Requirement for a healthy (d)
  - living
  - (A) (i)-(a); (ii)-(b); (iii)-(c); (iv)-(d) (B) (i)-(d); (ii)-(c); (iii)-(b); (iv)-(a)
  - (C) (i)-(d); (ii)-(b); (iii)-(a); (iv)-(c) (D) (i)-(a); (ii)-(c); (iii)-(d); (iv)-(b)
- **60.** The inflation target of the Central Government of India, (in consultation with RBI) for the year April 1,2021 to March 31, 2026 is set at :
  - (A) 4% (with the upper tolerance level of 6% and the lower tolerance level of 2%)
  - (B) 4.5% (with the upper tolerance level of 5.5% and the lower tolerance level of 3.5%)
  - (C) 3.5% (with the upper tolerance level of 5.5% and the lower tolerance level of 1.2%)
  - (D) 4% (with the upper tolerance level of 5.5% and the lower tolerance level of 2.5%)
- **61.** As per the notification of government of India March 2021, the daily wage of an MGNREGA unskilled Manual worker for the year 2021 in Kerala is:
  - (A) Rs.281 (B) Rs.291
  - (C) Rs.301 (D) Rs.311

- **62.** Which of the following statement related to Prime Minister Employment Generation Programme (PMEGP) is not true?
  - (A) The maximum Cost of Project per unit in the Manufacturing sector is Rs. 25 Lakh
  - (B) Individuals, SHGs, Production cooperative societies and Charitable trusts are eligible to apply
  - (C) Khadi and Village Industries Commission (KVIC) is the implementing agency of the scheme
  - (D) There is no minimum educational qualification for applying for the scheme
- **63.** Scheme announced by the government of India to create New Employment and restoration of loss of employment During COVID 19 is :
  - (A) Pradhan Mantri Garib Kalyan Yojana (PMGKY)
  - (B) Aatmanirbhar Bharat Rozgar Yojana (ABRY)
  - (C) Prime Minister's Employment Generation Programme (PMEGP)
  - (D) Deendayal Antodaya Yojana-National Urban Livelihoods Mission
- 64. Read the following sentences

Α

- (i) The expenditure as percentage of GDP on Health and Education by Government of India has been on an increase since 2015
- (ii) The total expenditure as percentage of GDP on Health and Education by Government of India has remained less than 8% since 2015
- (A) Both the statements are true (B) Statement (i) is true and (ii) is false
- (C) Statement (i) is false and (ii) is true (D) Both the statements are false
- **65.** From the following codes, select the Four codes which are formulated by amalgamating 29 Central labour laws as part of the labour market reforms in India during the year 2019 and 2020 :
  - (i) The Code on Wages, 2019,
  - (ii) The Code of Industrial Welfare 2019
  - (iii) The Occupational Safety, Health and Working Conditions Code, 2020
  - (iv) The Code on Social Security, 2020
  - (v) The Farmers Empowerment and Protection Code 2020
  - (vi) The Industrial Relations Code, 2020
  - (A) (i), (ii), (iii) and (iv) (B) (ii), (iii), (iv) and (vi)
  - (C) (iii), (iv), (v) and (vi) (D) (i), (iii), (iv) and (v)

66.	Among the following, which is not one of the four Pillars of the policy framework <i>for Nava Kerala</i> (New Kerala) :						
	(A)	A) Integrated Water Resource Management					
	(B)	Eco-sensitive and Risk-informed Land	l Use	and Settlements Approach			
	(C)	) Promoting Knowledge, Innovation, and Technology					
	(D)	Haritha Bhavanam — Green House F	roject	5			
67.	The litera	cy Programme for Migrant workers im	pleme	nted in Kerala is :			
	(A)	Hamari Malayalam	(B)	Changathi			
	(C)	Aksharam	(D)	SVANidhi			
68.	Among th period 201	ne following which state has the high 15-2020 :	est ra	te of Infant mortality rate during the			
	(A)	Tamil Nadu	(B)	Kerala			
	(C)	Karnataka	(D)	Andhra Pradesh			
69.	As per th geographi	e forest survey of India report, 2019, cal area in India is :	, the	percentage of forest cover to the total			
	(A)	28.95%	(B)	25.38%			
	(C)	21.67%	(D)	20.54%			
70.	As per the	e Census of India 2011, the Percentage	of Ur	ban Population in India is :			
	(A)	31.16%	(B)	28.28%			
	(C)	24.76%	(D)	23.44%			
71.	If A.M and $a$ and $b$ a	d G.M of two positive numbers $a$ and $b$ are :	are	10 and 8 respectively. Then the value of			
	(A)	4, 4	(B)	4, 16			
	(C)	4, -4	(D)	5, 15			

**72.** HCF and LCM of two numbers are 21 and 84 respectively. If the ratio of the two numbers are 1 : 4 then larger of the two number is = ?

(A)	48	(B)	12
(C)	84	(D)	108

73.	The incom to his inco	ne of a person is 3,00,000 in the first y ome per year for the next 19 years. Fin	ear ar d the t	nd he receives an increase of Rs. 10,000 otal amount, he received in 20 years :
	(A)	79,00,000	(B)	7,00,000
	(C)	6,00,000	(D)	None of these
74.	$\lim_{x\to 0}\frac{\tan x}{x}$	-=?		
	(A)	0	(B)	1
	(C)	∞	(D)	Not Defined
75.	Degree of	the differential equation $\left(\frac{d^2y}{dx^2}\right)^2 + x\left(\frac{d}{dx^2}\right)^2$	$\left(\frac{y}{x}\right)^5 + z$	$x^2 y = 0$ is:
	(A)	2	(B)	0
	(C)	3	(D)	5
76.	If $\sum U_n$ is	a convergent series of positive terms,	then $x$	$Lt_{t \to \infty} U_n$ is :
	(A)	1	(B)	±1
	(C)	0	(D)	None of these
77.	$1 - \frac{1}{2} + \frac{1}{3}$	$\frac{1}{3} - \frac{1}{4} + \dots = ?$		
	(A)	$\log_e^2$	(B)	$\log_{10}{}^2$
	(C)	$\log x$	(D)	None of the above
78.	The eccen	tricity of an ellipse is?		
	(A)	<i>e</i> = 1	(B)	<i>e</i> < 1
	(C)	<i>e</i> >1	(D)	0 < e < 1
79.	Calculate	the value of $\sqrt{1.01} - \sqrt{0.99} = ?$ correct	to six (	decimal places :
	(A)	0.01	(B)	0.001
	(C)	0.102	(D)	1.99
80.	Evaluate	$\int_{0}^{\pi/2} \sin^9 \theta  d \theta = ?$		
	(A)	$\frac{9}{8}$	(B)	$\frac{8}{9}$
	(C)	128/315	(D)	$\frac{315}{128}$
		/ 010		/ 140

81.	The equation $2x + y = 5, x + 3y = 5, x - 2y = 0$ have :				
	(A)	No solution	(B)	One solution	
	(C)	Two solution	(D)	Infinitely many solution	
82.	The series	$\frac{1}{1^p} + \frac{1}{2^p} + \frac{1}{3^p} + \cdots$ convergent if :			
	(A)	p > 0	(B)	<i>p</i> < 1	
	(C)	<i>p</i> > 1	(D)	$p \leq 1$	
83.	A bag contains 5 black and 6 red balls. Determine the number of ways in which 2 black and 3 red balls can be selected :				
	(A)	100	(B)	20	
	(C)	200	(D)	220	
84.	The distar	ace of $(2, 3)$ from $x + y = 1$ is :			
	(A)	2 units	(B)	$3\sqrt{2}$ units	
	(C)	$4\sqrt{2}$ units	(D)	$2\sqrt{2}$ units	
85.	In a Committee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speak atleast one of these two languages?				
	(A)	50	(B)	70	
	(C)	30	(D)	60	
86.	Which of t	he following computer generation uses	conce	pt of artificial intelligence?	
	(A)	First Generation	(B)	Second Generation	
	(C)	Third Generation	(D)	Fourth Generation	
87.	If $f(x) \begin{cases} \frac{\sin x}{2} \\ \frac{\sin x}{2} \end{cases}$	$\frac{12x}{x}  if  x \neq 0$ a continuous function? 1  if  x = 0			
	(A)	Only in some cases	(B)	Cannot be determined	
	(C)	Continuous	(D)	Not continuous	
88.	Let $y_1(x)$ conditions (A)	and $y_2(x)$ be the solutions of the di $y_1(0)=0$ $y_2(0)=1$ . Then: $y_1$ and $y_2$ will never intersect	fferen (B)	tial equation $\frac{dy}{dx} = y + 17$ with initial $y_1$ and $y_2$ will intersect at $x = 17$	
	. ,	· · · · ·	. ,	· · · · ·	

(C)  $y_1$  and  $y_2$  will intersect at x = e (D)  $y_1$  and  $y_2$  will intersect at x = 1

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89. The general solution of the differential equation  $\frac{dy}{dx} + \frac{y}{x} = \tan 2x$  is ...?

(A) 
$$\sin\left(\frac{y}{x}\right) = cx$$
 (B)  $\cos\left(\frac{y}{x}\right) = cx$   
(C)  $\sin\left(\frac{x}{y}\right) = cx$  (D) None of these

**90.** A function  $f: Z \to Z$  defined by :  $f(x) = x^2$  is

(A)	One to one	(B)	Onto
(C)	Neither One to one nor Onto	(D)	Bijective

- 91. Who among the following led the party of Akalis at Vaikom?
  - (A) Kripal Singh (B) Gur Charan Singh
  - (C) Kapur Singh (D) Baba Banda Singh Bahadur
- **92.** "Though intelligent and educated men were not wanting among the members of the Ezhava community, not one of them held an appointment carrying a salary of Rs. 5 or more." This statement about the Ezhavas at the end of the 19<sup>th</sup> Century was first made in which of the following document?
  - (A) Ezhava Memorial, 1895 (B) Ezhava Memorial, 1900
  - (C) Travancore Memorial, 1891 (D) Travancore Census, 1891
- 93. Which one of the following newspapers was published from Trivandrum?
  - (A) Muslim (B) Samadarsi
  - (C) Al Ameen (D) Malayala Rajyam
- 94. "Of the human species is even a Brahmin born,

as is the Pariah too,

Where is difference then in caste as between man and man?"

This verse is taken from

- (A) Kundalinipattu (B) Jatinirnayam
- (C) Jatilekshanam (D) Chandalabhikshuki

95. Dharmakalasala-a Workmen Residential University was envisaged and founded by :

- (A) Swami Dharmatheerthan (B)
- (C) Nataraja Guru (D) Dr.P.Palpu

#### **96.** Who authored the book *Representative Indians*?

- (A) G.P.Pillai (B) Dadabhai Naoroji
- (C) Subba Rao (D) T.M.Nair
- **97.** The pioneer of *Islahi movement* in Kerala :
  - (A) E. Moidu Moulavi (B) Fazal Pookoya Thangal
  - (C) Vakkom Abdul Khader Moulavi (D) Chalilakathu Kunjahammad Moulavi

Sree Narayana Guru

- **98.** Which of the following statements is/are true?
  - (i) Kalahinidamanakam is a Malayalam translation of Shakespeare's drama Macbeth
  - (ii) Kalahinidamanakam was written by Kochunni Thampuran
  - (iii) Kalahinidamanakam was a Malayalam translation of the English drama Taming of the Shrew
  - (iv) Kalahinidamanakam was written by Kandathil Vargheese Mappila
  - (A) Only (i)
  - (B) Only (i) and (iv)
  - (C) Only (ii) and (iii)
  - (D) Only (iii) and (iv)
- 99. Cheramar Mahajana Sabha was founded by :
  - (A) K.P. Karuppan (B) Pambadi John Joseph
  - (C) K.P. Vallon (D) Ayyankali
- **100.** Which of the following quandruple are members of the Quadrilateral Security Dialogue (QUAD)?
  - (A) China, Japan, USA, Australia (B) Japan, USA, India, France
  - (C) India, Japan, Australia, Briton (D) India, USA, Australia, Japan

## SPACE FOR ROUGH WORK

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