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(Pages : 4)

Name

Reg. No.

THIRD SEMESTER (CUCBCSS-UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A11-BASIC NUMERICAL SKILLS

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part I

Answer all questions. Each question carries 1 mark.

L.	The set	of cubes of natural nos is		
	a)	Finite set.	b)	Infinite set.
	ç)	Null set.	d)	Equal set.
2.	The nu	mber of all possible matrices of order	3 ×	3 with each entry 0 or 1 is
	a)	27.	b)	18
	(g)	81.	d)	512.
s	The sys	item of equations $x + y = 3$ and $2x + 2$	2 <i>y</i> = (баге ———
	a)	Consistent.	b)	Inconsistent.
	ç)	Consistent and dependent.	d)	Dependent.
4.	The na	ture of roots of the equations $x^2 - 4x$	+ 4	is
	a)	Imaginary.	b)	Rational.
	ç)	Equal and rational.	d)	Irrational and unequal.
5,	The 9 th	term of the sequence 3,6,12 is	:	
	a)	256.	b)	128.
	ç)	64.	d)	768.

6. The simple interest on Rs. 68,000 at $16\frac{3}{2}$ % per annum for 9 months is _____ a) 7,500. b) 8,500. c) 9,500 d) 8,000. Statistics measures – a) Certainity. b) Uncertainity. c) Data. d) None. 8. Bar diagram is a ——— dimensional diagram. a) Two b) Three. c) One. None. d) 9. -— is better suited to open end series. a) Mean. Median. b) c) Mode. d) None. 10. If N = 10, $\sum x = 60 \sum x^2 = 1000$ the standard deviation is ----a) 100. b) 6. d) 8. c) 12.

 $(10 \times 1 = 10 \text{ marks})$

Part II (Short Answer Questions)

Answer any **eight** questions. Each question carries 2 marks.

- 11. Define null set and singleton set?
- 12. Define square matrix and give example?
- 13. Solve x + y = 7 and x y = 6.
- 14. Solve $\frac{2}{x} + \frac{x}{2} = 2$.
- 15. Determine k, if k + 2, 4k 6, 3k 2 are 3 consecutive terms of AP.

16. On what sum of money will compound interest for 2 years of 5 % year amount to Rs. 164 ?

17. Limitation of Statistics.

18. What is pictogram and Cartogram ?

19. Find the geometric mean of 85, 15, 500, 250, 70, 75, 45, 8, 40, 36

20. Why Fisher index number is called ideal ?

 $(8 \times 2 = 16 \text{ marks})$

Part III (Short Essays)

Answer any six questions. Each question carries 4 marks.

21. For matrix $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ prove that $A^3 - 6A^2 + 7A + 2I = 0$.

22. How many terms of the AP - 6, $-\frac{11}{2}$, -5.... are needed to give the sum - 25.

23. Find the positive value of 'k' if one root of $x^2 - kx + 243 = 0$ is thrice the other

24. Compare standard deviation and mean deviation.

25. Solve (x+3)(x+6) + (x+6)(x+9) + (x+9)(x+3) = 0.

26. Draw ogive for the following data :

Mid x	;	5	10	15	20	25	30
Frequency	:	10	12	85	100	80	13

27. What are the steps in the construction of cost of living index number ?

28. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$; $A = \{1, 2, 3, 4\}$; $B = \{2, 4, 6, 8\}$; and $C = \{3, 4, 5, 6\}$.

Find (i) A'; (ii) B'; (iii) $(A \cup C)'$; and (iv) $(A \cup B)'$.

 $(6 \times 4 = 24 \text{ marks})$

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Part IV (Long Essays)

Answer any **two** questions. Each question carries 15 marks.

29. Solve the system of equation using matrix method x + y + z = 6; y + 3z = 11; x + z = 2y.

30. Find a 4 yearly moving average and the centered 4 year moving average from the following data :

		Year	:	2000	20	01	2002	20	03	2004	200	52	2006	2007
		Output	Output : 301		45	54	393	414		424	464	Ļ 4	466	492
31.	The s	The scores of 2 batsman Lara and Sachin in 10 innings during a certain seasonare :												
		Lara	:	32	28	47	63	71	39	10	60	96	14	
		Sachin	:	19	31	48	33	67	90	10	62	40	80	

Find which of the two batsman, Lara or Sachin is more consistent in scoring?

 $(2 \times 15 = 30 \text{ marks})$