CA - FOUNDATION



QUANTITATIVE APTITUDE SERIES – 2 SEPTEMBER - 2024 VOL – 32 Date : 18.08.2024

Vidya Sagar Institute

K-50, Bhawna Tower, Income Tax Colony, Tonk Road, Near Durga Pura, Bus Stand, Jaipur - 302018 Mobile :- 93514-68666 Ph. :- 7821821250, 7821821251, 7821821252, 7821821253, 7821821254. web : <u>www.vsijaipur.com</u>

VIDYA SAGAR

CAREER INSTITUTE LIMITED

CA FOUNDATION

"QUANTITATIVE APTITUDE"

SERIES - 2

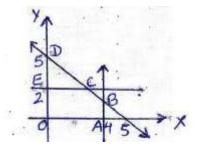
(10	Time : 2 Hours Maximum Marks: 10 (100% Course) Date : 18.08.2024 Vol - 32 Attempt : Sept 202				
Ins 1. 2. 3. 4.	 Each question carry one mark. Negative marking .25 marks for each wrong answer. 				
==					
1	If P is 25% less than Q and R is 20% hig		of R and P		
	(a) $5:8$	(b) 8:5 (d) 2:5			
	(c) 5:3	(d) 3:5			
2	If $a = \frac{\sqrt{6} + \sqrt{5}}{\sqrt{6} - \sqrt{5}}$ $b = = \frac{\sqrt{6} - \sqrt{5}}{\sqrt{6} + \sqrt{5}}$ then the value (a) 486 (c) 482	e of = $\frac{1}{a^2} + \frac{1}{b^2}$ is : (b) 484 (d) 500			
3	If (x + 5) is the mean proportional betw	veen (x+2) and (x+9)	then the value of 'x' is		
U	(a) 4	(b) 5			
	(c) 7	(d) 8			
4	If abc = 2 the value of $\frac{1}{1+a+2b^{-1}} + \frac{1}{1+\frac{b}{2}+c^{-1}}$	$\frac{1}{1+a^{-1}+c} =$			
	(a) 1	(b) 2			
	(c) 1/2	(d) 3/4			
5	If $\log(ab) = y$ then $\log(ab)$ is				
3	If $\log_a (ab) = x$, then $\log_b (ab)$ is - (a) $1/x$	(b) $\frac{x}{1}$			
		(d) None of the function $(1+x)$	hasa		
	(c) $\frac{x}{x-1}$				
6	If $\frac{3}{x+y} + \frac{2}{x-y} = -1$ and $\frac{1}{x+y} - \frac{1}{x-y} = \frac{4}{3}$ then				
	(a) $(2, 1)$	(b) $(1, 2)$			
	(c) (-1, 2)	(d) (-2, 1)			

- 7 The rational root of the equation $0 = 2p^3 p^2 4p + 2$ is
 - (a) -2 (b) 2
 - (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$
- 8 If the A.M between the roots of Quadratic equation is '8' and G.M is '5' then the equation is
 - (a) $x^2 + 16x 25 = 0$
 - (c) $x^2 16x 5$

(b) $x^2 - 16x + 25 = 0$ (d) None of these

- 9 If α and β are the roots of the equation $2x^2 + 5x + k = 0$, and $4(\alpha^2 + \beta^2 + \alpha \beta) = 23$, then which of the following is true?
 - (a) $k^2 + 3k 2 = 0$

- (b) $k^2 2k + 3 = 0$ (d) $k^2 - 2k + 3 = 0$
- (c) $k^2 2k 3 = 0$ (d) $k^2 3k + 2 = 0$
- 10 Given conditions $x + y \ge 5$, $x + y \le 5$, $0 \le x \le 4$ and $0 \le y \ge 2$ then the common region under these conditions is



|--|

(c) Line segment CD

(b) EOABCE(d) Line segment BC

11 In simple interest, a certain sum becomes Rs. 97,920 in 3 years, and Rs. 1,15,200 in 5 years, then the rate of interest is:

(a)	10%	(b)	11.2%
(c)	12%	(d)	13.6%

12 Bhavesh deposited Rs. 2 lakhs in a bank for 3 years at the rate of interest 8% p.a then the interest is:

(a)	48,000	(b)	4,800
(c)	480	(d)	48

- 13 A man invests an amount of Rs. 15860 in the names of his three sons A, B and C in such a way that they get the same amount of interest after 2, 3 and 4 years respectively. If the rate of interest is 5% then ratio of amount invested in the name of A,B and C is
 - (a) 6:4:3 (b) 30:12:5
 - (c) 3:4:6 (d) None of the above
- 14 A certain money doubles itself in 10 years when deposited on simple interest. It would triple itself in

(a)	30 years	(b)	20 years
(c)	25 years	(d)	15 years

15	The simple interest on a sum at 4% p.a. for two years is Rs. 80. Find the compound
	interest on the same for the same period.

(a)	Rs. 81.6	(b)	Rs. 80.8
(c)	Rs. 83.2	(d)	Rs. 82.3

16 When 'i' denote the actual rate of interest in decimal, and n denote the number of conversion periods, the formula for computing the effective rate of interest E is given by.

- (a) $(1+i)^n$ (b) $(1+i)^{n-1}$
- (c) $1-(1+i)^n$ (d) $(1+i)^{-n}$

17 A sum of Rs. X amounts to Rs. 27,900 in 3 years and to Rs. 41,850 in 6 years at a certain rate percent per annum, when the interest is compounded yearly. The value of x is

- (a) 16,080 (b) 18,600
- (c) 18060 (d) 16800

18 The effective rate of return for 24% per annum convertible monthly is given as

- (a) 24% (b) 26.82%
- (c) 18% (d) 24.24%

19 Which of the following statements is true?

- (a) F.V of ordinary annuity < F.V of annuity due
- (b) F.V of ordinary annuity > F.V of annuity due
- (c) P.V of ordinary annuity > P.V of annuity due
- (d) None of the these

Find the present value of Rs. 1,00,000 be required after 5 years if the rate of interest is 9% given that $(1.09)^5 = 1.5386$

(a)	78,995.98	(b)	64,994.20
(c)	88,992.43	(d)	93,902.12

21 If the desired future value after 5 years with 18% interest rate is Rs. 1,50,000, then the present value (in Rs.) is (Given that (1.18)⁵ = 2.2877)

(a)	63,712	(b)	65,568
(c)	53,712	(d)	4117

Assuming that the discount rate is 7% p.a. how much would you pay to receive Rs. 200, growing at 5% annually, forever?

(a)	Rs. 2, 500	(b)	Rs. 5,000
(c)	Rs. 7,500	(d)	Rs. 10,000

23 If the cost of capital be 12% per annum., then the net present value (in nearest Rs.) from the given cash flow is given as

	Year	0	1	2	3
Ope	erating profit (in thousands Rs.)	(100)	60	40	50
(a) (c)	3,1048 51048	(b) (d)	34185 21047		

24	The future value of annuity of Rs. 2,000 for 5	5 yea	rs at 5% compounded annually is given
	(in nearest Rs.) as		
	(a) 51051	(b)	21021
	(c) 11051	(d)	61254
25	The number of arrangements that can "ALLAHABAD":	be	formed from the letters of the word
	(a) 7560	(b)	3780
	(c) 30240	(d)	15320
		(-)	
26	If ${}^{n}p_{4} = 20 {}^{n}p_{2}$ were denotes the number of		
	(a) 4	(b)	2
	(c) 5	(d)	7
27	If ${}^{1000}C_{98} = {}^{999}C_{97} + {}^{x}C_{901}$ then the value of	.f.v. 1	uill bou
27		(b)	998
	(a) 999 (c) 997	(d)	None of these
	(c) 557	(u)	None of these
28	A fruit basket contains 7 apples, 6 banan	as a	nd 4 mangoes. How many selections of
	3 fruits can be made so that all 3 are apples?	•	
	(a) 120 ways	(b)	35 ways
	(c) 168 ways	(d)	70 ways
29	The sum n terms of the series 1 + (1+3) + (1-	+3+1	2) +
2)			$\frac{n(n+1)(2n+1)}{3}$
	(a) $\frac{n(n+1)(2n+1)}{6}$	(D)	3
	(c) $\frac{n(n+1)(n+2)}{3}$	(d)	None of these
30	In G.P, if $a_3 = 8$ and $a_7 = \frac{128}{625}$ then $a_{10} = _$		
	(a) $\frac{256}{52125}$	(b)	512
	1024		78125 1024
	(c) $\frac{100}{78125}$	(d)	15625
31	If the sum of three numbers in a geome	tric	progression is 28. When 7,2 and 1 are
	subtracted from the first, second and the th numbers are in arithmetic progression. Wh numbers?		
		പ്ര	456
		(b)	336
	(c) 400	(d)	330
32	In a class of 35 students, 16 students play f	footł	oall and 24 students play cricket. Assume

32 In a class of 35 students, 16 students play football and 24 students play cricket. Assume that each one play atleast one game, then number of students who play both the games is _____:

(a)	5	(b)	11
(c)	12	(d)	17

33	Let f. R \Rightarrow R be defined by $\begin{cases} 2x \ for \ x > 3 \\ x^2 \ for \ 1 < x \le 3 \\ 3x \ for \ x \le 1 \end{cases}$		
	The value of $f(-1) + f(2) + f(4)$ is	(1-)	14
	(a) 9 (c) 5	(b) (d)	14 6
	(c) 5	(u)	8
34	If $f(x) = x^2 - 1$ and $g(x) = 2x+3 $, then fog(3)	-gof (-3) =
01	(a) 71	(b)	-
	(c) 41	(d)	51
35	If A = {1,2,3} then the relation R = {(1,1), (2,	,3),(2,	2),(3,3), (1,2)} on A is:
	(a) Reflexive	(b)	-
	(c) Transitive	(d)	Equi-valence
36	f(x+h)-f(x)		
30	n n	is equ	
	(a) $2x + b$	(b)	
	(c) $2ax + b$	(d)	None of these
37	f(x) = 2x - x is:		
-	(a) Undefined at $x = 0$	(b)	Discontinuous at x = 0
	(c) Continuous at $x = 0$	(d)	None of these
38	Y = x(x-1) (x-2) then $(dy/dx) =$		
	(a) $3x^2 - 6x + 2$		- 6x +2
	(c) $3x^2 + 2$	(a)	x ² – 2
39	In a market there are 30 shops to allocate monthly expenses, in rupees, is given by,		
	shops should they allocate to minimize the		
	(a) 0	(d)	30
	(c) 25	(d)	10
40	The value of $\int_0^{1/2} \frac{dx}{\sqrt{3-2x}}$ is		
	(a) 1	(b)	$1 - \sqrt{3/2}$
	(c) $\sqrt{3}-\sqrt{2}$		$\sqrt{2} - \sqrt{3}$
41	What comes next in the series:		
	B2S, D3T, F5U, H7V, ?		
	(a) J9W	(b)	J11W
	(c) J13U	(d)	J11V
42	Find the missing value in the series; 51, 52,		
	(a) 195	(b)	276
	(c) 317	(d)	420

43 In a series of letters, which one is the odd one out: BDFH, JLNP, RTVX, ZBDE?

- (a) BDFH
 - BDFH (b) JLNP BTVX (d) 7BDF
- (c) RTVX (d) ZBDE

44 In a certain code TEACHER is written as VGCEJGT, how is CHILDREN written in that code?

- (a) EJKNEGTP (b) EGKNFITP
- (c) EJKNFGTO (d) EJKNFTGP

45 In a certain code INACTIVE is written ns ANICTEVI, how is COMPUTER written in the same code?

- (a) PMOCRETU (b) ETUPMOCR
- (c) UTEPMOCR (d) MOCPURET

46 Kanan started walking from A, 200 m towards North to reach B. Then he turned right and walks 300 m to reach C. Then he turns right and walks 350 m to reach D. Then he turns left and walks 150 m to reach E. Finally, he turns left and walks 150 m. he arrived at the point F. What is the distance between point A and F?

(a)	450 m	(b)	200 m
(c)	250 m	(d)	300 m

47 Hari walks 2 kms to West, then turns and starts walking South-East. He walks 3 kms. Then he turns North and walks 5 kms. Then again, he turns East and walks 2 kms. Finally, he turns South and walks 6 kms. In which direction is starting point from end point?

- (a) South West (b) South East
- (c) North East (d) North West
- 48 A person walks 1 km (kilometer) towards West and then he turns to South and Walks 5 km. Again, he turns to West and Walks 2 km. After this he turns to North and walks 9 km. How far is he from his starting point?

(a)	3 km	(b)	4 km
(c)	5 km	(d)	7 km

49 A car starts from a point, runs 20 kms toward north, turns right and runs 35 kms, turn right again and runs. which is the direction now it is facing

- (a) North (b) South
- (c) East (d) West

50 If Shyam sees the rising sun behind the tower and setting sun behind the Railway station from his house. What is the direction of tower from Railway station?

- (a) South (b) North
- (c) West (d) East

51 Shyam's Mother said Shyam " My mother has son whose son is Ram". Shyam is related Ram as ______.

- (a) Uncle (b) Cousin
- (c) Nephew (d) Grandfather

52 A is B's sister, C is B's mother, D is C s father E is D's mother. How is A related to D?

- (a) Grandmother
- (c) Daughter

- (b) Grand Father
- (d) Grand Daughter

53 Raju is husband of Devi. Karan is father of Gopal, Arjun is a son of Shobha, Ashok is brother of Shobha, Karn is a father of Arjun, Karan is son-in-law of devi, then how is Raju is related to Arjun?

(a) Father

- (b) Uncle
- (c) Son-in-law (d) Grand Father

54 Pointing towards a photograph Mrs. X says, "This man's son's sister is my mother-in-law. How is Mrs. X husband is related to a man in the photograph?

- (a) Son (b) Grand Son
- (c) Brother
- (d) Daughter
- 55 X, is a male introduces Y saying, He is the husband of the granddaughter of the father of my father. How is Y related to X?
 - (a) Brother (b) Father
 - (c) Brother-in-law (d) Father-in-law
- 56 Five players named as A, B, C, D and E are sitting on a bench, facing south, and are waiting to be interviewed by a selector. The person C is an immediate neighbor of both A and B. the person A is the fourth person from right end, if E is to right of B, then where is E sitting?
 - (a) Fifth from right end (b) Fourth from right end
 - (c) Fifty from left end (d) Second from right end
- 57 The persons named U, V, W, X, Y and Z are sitting along the circumference of a round table. They are facing the center of the round table. Given: X is the third left of Z and U is the second right of X; W is third to Y's right. Then V is sitting immediate left to
 - (a) V (b) U (c) W (d) X
- 58 Eight friends A, B, C, D, E, F, and H are sitting around a circular table facing the Centre. A is Sitting two places to the right of B, who is sitting directly opposite D. C is sitting to the immediate left of B and to the immediate right of E. F, who is opposite to G, is not sitting next to A. Who is sitting to the immediate left of H?
 - (a) A (b) B (c) C (d) D
- 59 5 persons are standing in a line. The 2 persons at the extreme ends are a professor and a businessman. An advocate is standing to the right of student. An author is to the left of the businessman. Counting from the Professor's end, The author is at which place?
 - (a) 2nd (b) 3rd
 - (c) 4^{th} (d) 5^{th}

60 A, B, C, D, E and F are standing in a circle talking, facing inward, E is right of C, who is standing 3 places away from D. A is standing 2 seats away from F. Which of the following has to be true? A is standing opposite to C A is standing next to E (a) (b) (c) A is standing next to D (d) A is standing next to B 61 The frequency of visitor in an office is given below: 9 AM - 11 AM 11 AM - 1 PM 1 PM - 3PM 3 PM - 5 PM Time 5 7 12 Frequency 18

Find the cumulative frequency of visitors for the time 11 AM - 1 PM?

(a)	5	(b)	23
(c)	18	(d)	30

In a Standard Normal distribution, then the value of the mean (μ) and standard deviation
 (μ) is:

(a)	$\mu = 0$ and $\sigma = 0$	(b)	μ = 0 and σ = 1
(c)	$\mu = 1$ and $\sigma = 0$	(d)	μ = 1 and σ = 1

63 If the regression line of y on x and of x on y are given by 10x - 290 = -20y and 7 y - 104 = -4x. Then the arithmetic means of x and y are given by :-

(a)	5, 12	(b)	7,12
(c)	12, 5	(d)	5,7

64 _____ may be defined as the ratio of covariance between the two variables to the product of the standard deviations of the two variables.

(a) Scatter diagram
 (b) Karl Pearson's correlation coefficient
 (c) Spearman's correlation coefficient
 (d) Coefficient of concurrent deviations

65 If mean of 5 observations x + 1, x + 3, x + 5, x + 7 and x + 9 is given 15, then the value of x

will be:(a) 10(b) 12(c) 8(d) 11

66 Consider the following data where class length is given as 5. Calculate the number of class intervals.

59,	68, 78, 57, 44, 73, 40, 60, 70, 47		
(a)	5	(b)	6
(c)	7	(d)	8

67 The mean of the first three terms is 17 and mean of next four terms is 21. Calculate the mean of seven terms.

(a)	18.28	(b)	19.78
(c)	19.58	(d)	19.28

68	The mean of a set of 20 observations in 18.3. The mean is reduced by 0.6 when a newobservation is added to the set. The new observation is:(a)17.6(b)18.9				
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
69	If P(A) = ½ and P(B) = 1/3 and P (A \cup B) = 2 / 3 then find P (A \cap B)				
	(a) $\frac{1}{4}$ (b) $\frac{2}{3}$				
	(c) $\frac{1}{6}$ (d) $\frac{1}{2}$				
70	If six coins are tossed simultaneously. The probability of obtaining $(x) = 0.2242$	exactly two heads are.			
	(a) 0.2343 (b) 0.9841 (c) 0.1268 (d) 0.0156				
71	A box contain 20 electrical bulbs out of which 4 are defective. Two b	ulhs are chosen at			
	random from this box. The probability that at least one of them is d				
	(a) $\frac{7}{19}$ (b) $\frac{4}{19}$				
	(c) $\frac{12}{19}$ (d) $\frac{15}{19}$				
72	If the coefficient of correlation is 0.8 and regression coefficient b_{xy} = value of regression coefficient b_{yx} ?	= 0.32 then what is the			
	(a) 2 (b) 1 (c) 0.52 (d) 0.48				
73	If the Regression coefficient (r_{yx}) of y on x is greater than unity, t coefficient (r_{xy}) of x on y is:	hen other Regression			
	(a) Less than one(b) Greater than one(c) Equal to one(d) Equal to zero				
74		ion hatwaan y and y is			
74	0.8. What is the value of regression coefficient of x on y?	ion between x and y is			
	(a) 0.2448 (b) 0.4267 (c) 0.5733 (d) 0.7441				
75	If the range of a data is 20 and its smallest value is 5, then what i data is?	is the largest value of			
	(a) 20 (b) 25				
	(c) 5 (d) 30				
76	If 'x' and 'y' are independent normal variate with mean and Standar and σ_1 , σ_2 respectively, then for $z = x + y$ which also follows no mean and SD are:	•••			
	(a) Mean = $\mu_1 + \mu_2$, SD = $\sqrt{\sigma_1^2 + \sigma_2^2}$ (b) Mean = $(\mu_1 + \mu_2)/2$, S	SD = $\sqrt{(\sigma_1^2 + \sigma_2^2)} / 2$			
	(c) Mean = $\mu_1 - \mu_2$, SD = $\sqrt{\sigma_1^2 - \sigma_2^2}$ (d) Mean = $(\mu_1 - \mu_2)/2$,	$SD = \sqrt{(\sigma_1^2 - \sigma_2^2)} / 2$			

77	For a binomial distribution the mean and standard deviation are 10 and 3 respectively. Find the value of n.						
	(a)	30	(b)	9			
	(c)	90	(d)	100			
78	8 Which of the following measure of central tendency depends on the position of th observation?						
	(a)	Mean	(b	b) Median			
	(c)	Mode	(d	d) Harmonic mean			
79	79 Which of the following measure of central tendency will be unaffected if the lower highest observations are removed?						
	(a)	Mean	(b	b) Mode			
	(c)	Median	(d	d) Range			
80		ere are two groups containing 40 ar nd 60, then the combined arithmetic		observations and have arithmetic means as 1 is:			
	(a)	55.48	(b	b) 56.35			
	(c)	54.28	(d	d) 59.28			
81	If Mo	ean of a data set 22 and Median is 22	.33, the	en the Mode is			
	(a)	21	(b	b) 21.34			
	(c)	22.99	(d	d) 21.54			
82	For	the first 20 natural numbers, the sta	ndard o	deviation is:			
	(a)	5.77	(b	b) 7.75			
	(c)	5.64	(d	d) 6.54			
83		ean Deviation about Arithmetic M ficient of Mean Deviation about Arit		s 1.78 and Arithmetic Mean is 3.50 then c Mean is:			
	(a)	50.85	(b	b) 44.33			
	(c)	52.65	(d	d) 51.85			
84	The	coefficient of the range of the data 7	, 8, 4, 1	1,9, 12, 18, 16, 94, 3, 5, -6 is			
	(a)	133.6	(b	b) 163.3			
	(c)	166.3	(d	d) 113.6			
85	The	average of base year and current ye	ar is us	sed in index number.			
	(a)	Laspeyres's	(b	b) Paasche's			
	(c)	Fisher's ideal	(d	d) Marshall – Edgeworth			
86	Whi	ch index number formula does not s	atisfy t	the time reversal test?			
	(a)	Fisher's ideal index & Laspeyre's inde	ex				
	(b)	Laspeyres's index & Passche's index					
	(c)	Passche's index & Fisher's ideal index	x				
	(b)	Laspeyre's index, Fisher's ideal index	and Pa	assche's index			

87 If the pieces of all commodities in the base year are twice the values of respective commodities in the current year, then the Fisher's ideal index number is equal to:

(a) 200

- (b)
- (c) 400 (b) 25

88 Which index number formula satisfies both the time reversal test and factor revesal tests?

(a) Fisher's ideal index

(b) Laspeyre's index

50

(c) Passche's index (b) Marshall-Edgeworth index

89 Which of the following is not a test of adequacy in the context of index numbers?

- (a) Unit test (b) Square test
- (c) Circular test (b) Factor reversal test

90 Two frequency distribution are given to you. To compare them visually the best diagram to be drawn on same sheet is:

- (a) Pie (b) Histogram
- (c) Frequency polygon (b) Bar chart

91 A less than ogive curve drawn by plotting

- (a) Less than cumulative frequency on the vertical axis
- (b) More than cumulative frequency on the vertical axis
- (c) Highest frequencies on vertical axis
- (b) Lowest frequencies on vertical axis

92 The following set of data cannot be presented in a table.

- (a) The heights of students described in centimeters
- (b) The weights of candidates expressed in kilograms
- (c) The amount of rainfall opined as "medium:, "average", "heavy", etc.
- (b) The number of bills per day cleared by and auditor in a month

93 An ogive is used to represent:

- (a) The frequency of each data point
- (b) The number of data points falling below a specific value
- (c) The proportion of data points falling below a specific value
- (b) The relationship between two variables

94 A question in statistics is given to three students A, B and C. Their chances of solving the question are 1/3, 1/5 and 1/7 respectively. The probability that the question would be solved is

- (a) $\frac{19}{35}$ (b) $\frac{16}{35}$
- (c) $\frac{1}{105}$ (b) $\frac{104}{105}$

95 A random variable has the following probability distribution.

		X	2	3	5	
		Р	К	2K	2K	
Find K.						
(a)	$\frac{1}{3}$				(b)	2 5
(c)	<u>1</u> 5				(b)	$\frac{2}{3}$

96

The following table gives the cumulative probability function of X:

X	0	1	2	3	4	5				
P(X)	6/30	5/30	13/30	1/15	1/10	1/30				
The expectation of X is										
(a)	1.8				(b) 1.2	7			
(c)	1.5				(b) 1.0	6			

97 The mean of Poisson distribution is 4. The probability of two successes is:

(a)	$\frac{8}{e^4}$	(b)	$\frac{4}{e^4}$
(c)	$\frac{16}{e^4}$	(b)	$\frac{8}{e^2}$

98 A company produces 5 defective items out of 300 items. The probability distribution follows a:

(a) B	Binomial distribution	(b)	Normal distribution
-------	-----------------------	-----	---------------------

(c) Poisson distribution (b) Standard normal distribution

99 Which of the following is not a type of sampling?

(a) Probability(b) non-probability(c) Stand-alone(b) Mixed

100 Which sampling is based on the discretion of the sampler?

- (a) Systematic (b) Multi-stage
- (c) Stratified (b) Purposive

To join the video meeting,

click this link: <u>https://meet.google.com/mwg-qsvy-tmy</u> LIVE GUIDANCE FOR CA FOUNDATION STUDENTS BY CA R C SHARMA SIR AT 6:30 PM ON 18-08-2024