

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 × 2 = 16 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 $-6, -\frac{11}{2}, -5, \dots$ 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 × 4 = 24 marks)

Turn over

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	2001	2002	2003	2004	2005	2006	2007
Output	:	301	454	393	414	424	464	466	492

31. The scores of 2 batsman Lara and Sachin in 10 innings during a certain season are :

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 × 15 = 30 marks)