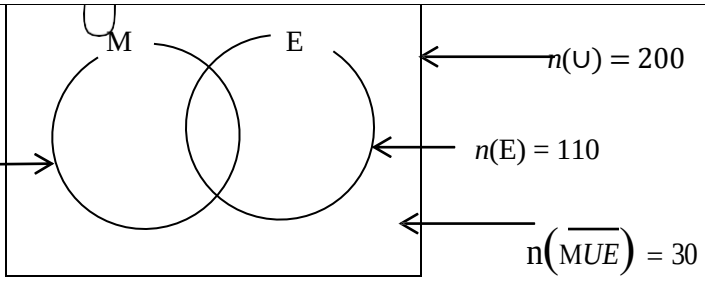
SEE - 2082 (2026)

अनिवार्य गणित

उत्तरकुञ्जिका

अन्य बैकल्पिक तरिकाबाट समस्या समाधान गरेमा पनि अङ्क प्रदान गर्नुपर्ने छ । उत्तरकुञ्जिकामा प्रत्येक चरणको प्राप्ताङ्क १ भएतापनि विद्यार्थीहरुले आंशिक समाधान गरेको अवस्थामा तथा सामान्य कुराहरू (जस्तैः एकाइ) छुट हुन गएमा समेत ०.५ अङ्क प्रदान गर्नुपर्नेछ ।

प्र.नं.	उप - प्र. नं.	उत्तर	अङ्क
1	a	$n(\overline{MUE}) = 30$	1
	b	For Correct Venn-diagram 	1
	c	(i) $200 = 120 + 110 - x + 30$ (ii) $n(M \cap E) = 60$ (iii) no (M) + no(E) = 60 + 50 = 110	1 1 1
	d	Agree, $n(M \cap E) = 60 = 2(\overline{MUE})$	1
2	a	$CI = P[(1 + R/100)^T - 1]$	1
	b	i. CI for 1 year = $150000[1 + 10/100)^1 - 1] = Rs.15000$	1
		ii. Amount returned as the loan = Rs 70000	1
	c	ι. C.I for next year = $80000[1 + 10/100)^1 - 1] = Rs\ 8000$ (ii) Total money = Rs.173000	1 1
3	a	Correct definition of compound depreciation	1
	b	$V_T = 2000000\ (1 - 8/100)^3 = Rs.1557376$	1
	c	(i) Total amount received = Rs 1557376 + 743124 = Rs 2300500 (ii) Profit% = (300500/2000000) *x* 100 = 15.02%	1 1

1300000

4	a	NRs.1300000 = $ 1300000/143.75 = $ 9043.48	1
	b	(i) Buying rate after revaluation = NRS 142.43	1
	b	(ii) $ 9043.43 = NRS 142.43 x 9043.48 = NRS 1288062.86	1
	c	NRs.1300000 > NRS 1288062.86; there is loss because of revaluation.	1
5	a	Volume of the pyramid = 1/3 a^2h OR 1/3 A × h	1
	b	Volume of pyramid (V) = $\frac{1}{3} \times (24)^2 \times 9 = 1728$ cm^3	1
	c	(i) Slant height (l) = $\sqrt{12^2 + 9^2}$ = 15 cm (ii) LSA = 2 ×24 × 15 = 720 cm^2	1 1
6	a	(i) $l^2 = r^2 + h^2$ OR $l = \sqrt{r^2 + h^2}$	1
	b		
	b	(i) Height of cone = 31 - 7 = 24 cm (ii) Slant height (l) = $\sqrt{24^2 + 7^2}$ = 25 cm (iii) CSA of cone = 550 cm^2	1 1 1
	c	(i) Vol. of hemisphere =1232 cm^3 (ii) Vol. of cone is more than vol. of hemisphere by 513.33 cm^3	1 1
7	a	Area of parking place = 1/2(20 + 38) × 24 = 696 sq. ft.	1+1
	b	Total cost = Rs.2500/100 × 696 = Rs.17400	1
8	a	Arithmetic sequence	1

	b	(i) Income of first year = Rs 540000, d = Rs 18000 (ii) $S_n = \frac{4}{2}[2 \times 540000 + (4-1) \times 18000]$ (iii) Total income in 4 years (S_n) = Rs.2268000	1 1 1
	c	(i) 3510000 = n/2[2 × 540000 + (n - 1) 18000 (ii) n = 6 , required time = 6 years	1 1
9	a	$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$	1
	b	(i) Elder brother's age be x years and younger's be y years. $x + y = 28$ and $xy = 187$ (ii) 17 years and 11 years	1 1
	c	(i) (z + 11)(z + 17) = 247 (ii) On finding 2 years	1 1
10	a	(i) $\frac{m-n-(m+n)}{(m+n)(m-n)}$ (ii) $\frac{2n}{n^2-m^2}$	1 1
	b	(i) $3^y(3+1) = 36$ (ii) y = 2	1 1
11	a	Area of parm NEWS = 2 area of ΔNWS	1
	b	(i) Area of parm NAME = 2Area of ΔNEW Area of ΔNEWS = 2 Area of ΔNEW (ii) Area of parm NAME = Area of parm NEWS	1 1
	c	(ι) Join NM, Area of ΔANS = 1/2 ΔANM (ii) Area of ΔANM = 1/2 Area of parm NAME Area of ΔANS = 1/4 Area of parm NEWS	1 1

12	a	$\angle PAR + \angle PMR = 180°$	1
	b	$x = 2\angle PAR = 116°$	1
	c	(i) Two correct figures	1
		(ii) Correct measurement with table and conclusion	1
13	a	(i) Construction of quadrilateral PQRS (ii) Construction of line parallel to QS through R or parallel to PR through S. (iii) Construction of required triangle	1 1 1
	b	Area of quad. PQRS = $\Delta PSQ + \Delta SQR$ $\therefore$ Quad. PQRS = ΔPST	1
14	a	Definition of angle of elevation	1
	b	Height difference = 41.3 - 1.3 = 40 m	1
	c	Distance between tower and man = 40 m	1
	d	$\text{Tan}30° = 40/x$, $x = 69.28$ The man walked 69.28 - 40 = 29.28 m backward	1
15	a	L represents for lower limit of the median class	1
	b	(i) Position of median (30/2)th item = 15^{th} item Median class = 10 – 20 (ii) Exact median = $10 + \frac{15-12}{5} \times 10 = 16$	1 1
	c	(i) $\sum fm = 640$ (i) Mean = $\frac{640}{30} = 21.33$	1 1
	d	Average marks of remaining data = $\frac{70 + 360}{10} = 43$ Difference in marks = 43 - 21.33 = 21.67	1

16	a	Correct definition of independent events	1
		i. For correct diagram till first draw ii. For correct diagram till second draw ***N.B.:*** *Way of drawing figure may vary.*	1 1
	c	P(FF) = $\frac{9}{169}$	1
	d	Probability with replacement, P(FF) = $\frac{11}{221}$ $\therefore$ Difference = $\frac{9}{169} - \frac{11}{221} = \frac{10}{2873}$	1