

Answer Sheet	No	-
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MATHEMATICS HSSC-I

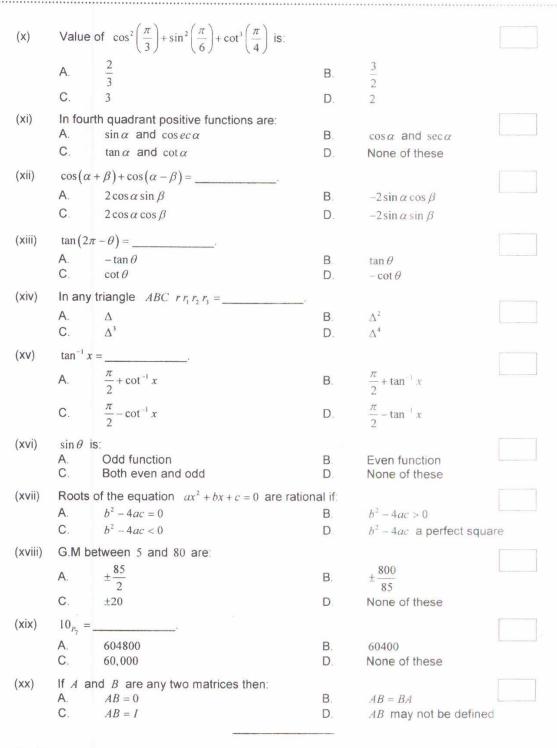
SECTION - A (Marks 20)

Time allowed: 25 Minutes

NOTE:- Section-A is compulsory and comprises pages 1-2. All parts of this section are to be answered r to the

Q. 1		tre Superintendent. Deleting/overv			
	each	part. Each part carries one mark.	1.7		
	(i)	$1 \times (-1) \times i \times (-i)$ is:			
		A. 1 C. <i>i</i>	B1 D <i>i</i>		
	(ii)	Modulus of 8-15 <i>i</i> is: A. 8 C. 17	B15 D. 8+5 <i>i</i>		
	(iii) If A has 3 elements and B has 6 elements, then minimum number of elements in $A \cup B$ is:				
		A. 3 C. 9	B. 6 D. 18		
	(iv)	A matrix whose determinant value i A. Zero matrix C. Non singular matrix	s zero is known as: B. Singular ma D. Identity mat		
	(v)	If the sum of the roots of the equation product, then the value of α is: A. 1 C. 3	on $ax^2 - 2x + 2a = 0$ is equal to th B. 2 D. 4	eir	
	(vi) The quotient of two polynomials $\frac{P(x)}{Q(x)}$ where $Q(x) \neq 0$ with no common				
		factor is called a: A. Rational fraction C. Polynomial	B. Irrational fra D. None of the		
	(vii) The sum of the series $2+7+12+$ up to 12 the terms is:				
		A. $\frac{n}{2}(3n+7)$	B. $\frac{n}{3}(3n-7)$		
		$C. \qquad \frac{n}{3}(3n+3)$	D. None of the	se	
	(viii) What is the probability of getting a 3 when one die is thrown?				
		A. $\frac{1}{6}$	B. $\frac{1}{2}$		
	251.55	C. $\frac{1}{4}$	D. $\frac{1}{3}$		
	(ix)	An expression consisting of two ter A. Monomial C. Binomial	ms is called: B. Trinomial D. None of the	se	

DO NOT WRITE ANYTHING HERE



For Examiner's use only:

Total Marks:	20
Marks Obtained:	



Time allowed: 2:35 Hours

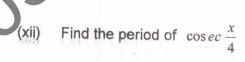
Total Marks Sections B and C: 80

NOTE:- Sections 'B' and 'C' comprise pages 1–2 and questions therein are to be answered on the separately provided answer book. Answer any ten parts from Section 'B' and attempt any five questions from Section 'C'. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly.

SECTION - B (Marks 40)

Q. 2 Attempt any TEN parts. All parts carry equal marks. (10 x 4 = 40)

- (i) Find the multiplicative inverse of -3-5i
- (ii) Without expansion verify that $\begin{vmatrix} bc & ca & ab \\ 1/a & 1/b & 1/c \\ a & b & c \end{vmatrix} = 0$
- (iii) Construct the truth table of $[(p \longrightarrow q) \land p] \longrightarrow q$
- (iv) If α , β are the roots of $x^2 px p c = 0$, prove that $(1+\alpha)(1+\beta) = 1-c$
- (v) Resolve into Partial Fraction $\frac{x^2+1}{(x+1)(x-1)}$
- (vi) Which term of the A.P 5, 2, -1, --- is -85?
- (vii) Prove that ${}^{n}C_{r} + {}^{n}C_{r-1} = {}^{n+1}C_{r}$
- (viii) Use principle of extended mathematical induction to prove that: $1+nx \le (1+x)^n$ for $n \ge 2$ and x > -1
- (ix) If $\cos ec \, \theta = \frac{m^2 + 1}{2m}$ and $\left(0 < \theta < \frac{\pi}{2}\right)$. Find the value of $\cot \theta$.
- (x) Prove that $(\tan \theta + \cot \theta)^2 = \sec^2 \theta \cos ec^2 \theta$
- (xi) Prove that $\frac{\cos 11^o + \sin 11^o}{\cos 11^o \sin 11^o} = \tan 56^o$



- (xiii) Solve the triangle ABC, if $\beta = 60^{\circ}$, $\gamma = 15^{\circ}$, $b = \sqrt{6}$
- (xiv) Prove that $r = \frac{\Delta}{s}$ with usual notations.

SECTION - C (Marks 40)

Note:- Attempt any FIVE questions. All questions carry equal marks. ($5 \times 8 = 40$)

- **Q. 3** Prove that $\sqrt{2}$ is an irrational number.
- **Q. 4** Solve the equation $2^x + 2^{-x+6} 20 = 0$
- Q. 5 Use matrices to solve the system:

$$x-2y+z=-1$$

$$3x+y-2z=4$$

$$y-z=1$$

- **Q. 6** Show that the set consisting of elements of the form $a + \sqrt{3}b$ (a, b being rational), is an abelian group w.r.t. addition.
- Q. 7 If S_2 , S_3 , S_5 are the sums of 2n, 3n, 5n terms of an A.P show that $S_5 = 5(S_3 S_2)$
- **Q. 8** Reduce $\sin^4 \theta$ to an expression involving only function of multiples of θ , raised to the first power.
- **Q.9** Solve $\sin x + \cos x = 0$

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