

**Academic year 2025-2026 (Odd Semester)**

Date	Dec 2025	Maximum Marks	50 + 10
Course Code	HS271TA	Duration	120 Min
Sem	VII	CIE II	
INDIAN KNOWLEDGE SYSTEM			

PART – A**(10 Marks)**

SLN o		M	CO	B T
1	Which Doṣa is primarily responsible for movement in the body? c) Vāta	1	3	L1
2	The treatise that governs Vāstu Śāstra principles is: b) Mānasāra	1	3	L1
3	The basic unit of Indian town planning in Vāstu is: c) Pada	1	3	L1
4	The Eight Limbs of Vāstu are known as: a) Aṣṭāṅga Vāstu	1	2	L1
5	The temple style with curvilinear Shikhara is: a) Nagara	1	2	L1
6	The ratio of circumference to diameter is known as: b) π	1	3	L1
7	Āryabhaṭa proposed that Earth: b) Rotates on its axis	1	2	L1
8	Which metal was used first in ancient India? b) Copper	1	3	L1
9	Which Yantra is used for measuring time? c) Water clock (Ghati Yantra)	1	3	L1
10	The Chandasutras are fundamentally related to: b) Meter of poetry	1	2	L1

TEST

Sl. No.	Part- B Questions	M	CO	BT
1 a	General Formula (nth term) $a_n = a + (n - 1)d$ <p>The nth term of an arithmetic progression is obtained by adding (1)times the common difference to the first term</p>	03		
b	Two Panchanga elements are Tithi, Vāra, Nakṣatra, Yoga, and Karaṇa .	02		
c	Wootz steel is a high-carbon crucible steel produced in ancient India (c. 300 BCE–1700 CE). It is renowned for its exceptional hardness, toughness, and sharp edge retention . Wootz was made by melting wrought iron with carbon-rich materials in sealed clay crucibles, followed by slow cooling. This process led to a characteristic watered or damask pattern due to carbide (cementite) formations. Wootz steel was widely exported and later became famous in the Middle East as Damascus steel for swords and blades.	02	3	L1
d	Piṅgala's Contribution to Combinatorics Ācārya Piṅgala , in his work Chandaḥśāstra (c. 200 BCE), made foundational contributions to combinatorics and binary mathematics through the study of poetic meters. Key contributions include: <ul style="list-style-type: none"> • Binary representation of syllables: <i>Laghu</i> (short) and <i>Guru</i> (long), analogous to 0 and 1. • Systematic enumeration of all possible metrical patterns for a given number of syllables (prastāra). • Development of methods equivalent to permutations and combinations. • Introduction of recursive counting techniques similar to the Fibonacci sequence (known as <i>mātrāmeru</i>). • Early use of ideas equivalent to Pascal's Triangle (<i>meru prastāra</i>). 	03		
2 a	1. Role of Geometry in Temple Construction Geometry plays a central role in Indian temple architecture, ensuring structural stability, aesthetic harmony, and spiritual symbolism . Temples are designed using Vāstu Puruṣa Maṇḍala , a geometric grid (usually 64 or 81 squares) that governs proportions and spatial layout. Precise geometric ratios determine the orientation, base plan (adhiṣṭhāna), elevation (śikhara or vimāna), and symmetry of the temple. Geometry also symbolizes cosmic order, linking the microcosm (temple) with the macrocosm (universe) .	03		
b	2. Art of Making Natural Perfumes The art of making natural perfumes in India, known as Gandha Śāstra , involves extracting fragrances from flowers, woods, resins, roots, and spices . Traditional methods include: <ul style="list-style-type: none"> • Hydro-distillation using water and heat (e.g., rose water) • Steam distillation • Enfleurage using fats to absorb fragrance • Infusion in oils or alcohol Natural fixatives such as sandalwood, musk, and amber were used to	03	3	L2

	enhance longevity. This art was well developed in ancient India and documented in classical texts.			
c	<p>3. Piṅgala's Binary System</p> <p>Piṅgala's binary system appears in the Chandaḥśāstra, where poetic meters are analyzed using two syllable types:</p> <ul style="list-style-type: none"> • Laghu (short) → 0 • Guru (long) → 1 <p>He used this system to enumerate all possible metrical patterns, effectively introducing a binary counting system, centuries before modern binary arithmetic.</p>	02		
d	<p>4. What is a Tithi?</p> <p>A Tithi is a lunar day in the Indian calendar, defined as the time taken for the angular separation between the Moon and the Sun to increase by 12°. There are 30 Tithis in a lunar month, divided into:</p> <ul style="list-style-type: none"> • Śukla Pakṣa (waxing phase) • Kṛṣṇa Pakṣa (waning phase) 	02		
3 a	<p>1. Nagara and Dravidian Temple Architecture</p> <p>Nagara Style (North Indian)</p> <p>Features:</p> <ul style="list-style-type: none"> • Curvilinear tower called Śikhara over the sanctum (Garbha-gr̥ha) • Amalaka (ribbed disc) and Kalasha at the top • Square ground plan • Temples often stand on raised platforms (Jagati) • Minimal enclosure walls <p>Examples:</p> <ul style="list-style-type: none"> • Kandariya Mahadeva Temple, Khajuraho • Sun Temple, Konark • Lingaraja Temple, Bhubaneswar <p>Dravidian Style (South Indian)</p> <p>Features:</p> <ul style="list-style-type: none"> • Pyramidal tower called Vimāna • Massive Gopurams (gateway towers) • Enclosed temple complexes with concentric walls (Prakāras) • Use of granite and elaborate sculptures • Large temple tanks (Pushkarini) <p>Examples:</p> <ul style="list-style-type: none"> • Brihadeeswara Temple, Thanjavur • Meenakshi Temple, Madurai • Ranganathaswamy Temple, Srirangam 	03		
b	<p>2. Major Water Management Practices for Sustainable Agriculture</p> <p>Traditional Practices:</p> <ul style="list-style-type: none"> • Rainwater harvesting (tanks, ponds, farm bunds) • Check dams and percolation tanks for groundwater recharge • Contour bunding and terracing to prevent runoff • Khadins and johads (arid regions) 		2	L1

	<p>Modern Practices:</p> <ul style="list-style-type: none">• Drip irrigation (water-efficient root-zone delivery)• Sprinkler irrigation• Soil moisture sensors & AI-based irrigation scheduling• Reuse of treated wastewater <p>Benefits:</p> <ul style="list-style-type: none">• Reduces water wastage• Improves groundwater levels• Enhances crop productivity and climate resilience <p>3. BMI–Consciousness Complex (Body–Mind–Intelligence Relationship) The BMI–Consciousness Complex explains the interconnected functioning of the body (BMI), mind, intellect, and awareness.</p> <p>Key Aspects:</p> <p>c</p> <ul style="list-style-type: none">• Body (BMI): Physical health affects mental clarity• Mind: Emotions influence behaviour and physiology• Intellect: Decision-making governs actions• Consciousness: Awareness integrates body and mind <p>Example: A person with high BMI due to poor lifestyle may experience low energy and mental stress, reducing concentration. Through yoga, diet regulation, and mindfulness, BMI improves, mental calm increases, and overall consciousness becomes balanced.</p> <p>4. Triguna System and Human Behaviour The Triguna system describes three fundamental qualities of nature (Prakṛti) influencing human behaviour:</p> <p>Sattva (Purity & Harmony)</p> <p>d</p> <ul style="list-style-type: none">• Knowledge, calmness, self-discipline• Leads to wisdom and ethical conduct <p>Rajas (Activity & Passion)</p> <ul style="list-style-type: none">• Desire, ambition, restlessness• Drives action but causes stress if excessive <p>Tamas (Inertia & Ignorance)</p> <ul style="list-style-type: none">• Laziness, confusion, dullness• Leads to apathy and lack of motivation <p>Influence on Behaviour:</p> <ul style="list-style-type: none">• Human personality is a dynamic balance of all three guṇas• Spiritual practices increase Sattva• Excess Rajas or Tamas leads to imbalance	03																							
4 a	<p>1. Comparison of Nagara and Dravidian Temple Architecture</p> <table><tr><th>Feature</th><th>Nagara Style (North India)</th><th>Dravidian Style (South India)</th></tr><tr><td>Main tower</td><td>Śikhara – curvilinear</td><td>Vimāna – pyramidal</td></tr><tr><td>Temple layout</td><td>Generally simple, square plan</td><td>Large, complex layouts</td></tr><tr><td>Entrance</td><td>Modest entrance</td><td>Massive Gopurams</td></tr><tr><td>Enclosure walls</td><td>Usually absent</td><td>Multiple Prakāras</td></tr><tr><td>Building material</td><td>Sandstone</td><td>Granite</td></tr><tr><td>Ornamentation</td><td>Vertical emphasis</td><td>Horizontal emphasis</td></tr></table>	Feature	Nagara Style (North India)	Dravidian Style (South India)	Main tower	Śikhara – curvilinear	Vimāna – pyramidal	Temple layout	Generally simple, square plan	Large, complex layouts	Entrance	Modest entrance	Massive Gopurams	Enclosure walls	Usually absent	Multiple Prakāras	Building material	Sandstone	Granite	Ornamentation	Vertical emphasis	Horizontal emphasis	03	2	L2
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	<p>Temple tank Rare Common (Pushkarini)</p> <p>Examples:</p> <ul style="list-style-type: none">• Nagara: Kandariya Mahadeva (Khajuraho), Sun Temple (Konark)• Dravidian: Brihadeeswara (Thanjavur), Meenakshi (Madurai) <p>2. Triguna System and its Psychological Significance</p> <p>The Triguna system explains human psychology through three inherent qualities of nature:</p> <p>Sattva</p> <ul style="list-style-type: none">• Clarity, balance, wisdom• Psychological traits: calmness, empathy, self-control <p>Rajas</p> <ul style="list-style-type: none">• Activity, desire, ambition• Psychological traits: restlessness, competitiveness, stress <p>Tamas</p> <ul style="list-style-type: none">• Inertia, ignorance, dullness• Psychological traits: lethargy, confusion, depression <p>Psychological Significance:</p> <ul style="list-style-type: none">• Human behaviour results from the dynamic interaction of the three gunas• Mental health improves by enhancing Sattva• Excess Rajas or Tamas leads to psychological imbalance <p>3. Components of the BMI-C Model (Body-Mind-Intelligence-Consciousness)</p> <p>The BMI-C model describes holistic human functioning through four components:</p> <ol style="list-style-type: none">1. Body (BMI): Physical structure and health2. Mind: Emotions, feelings, sensory processing3. Intelligence (Intellect): Discrimination, reasoning, decision-making4. Consciousness: Awareness and integration of body and mind <p>This model emphasizes holistic education and wellbeing.</p> <p>4. Educational Significance of the 64 Kalās</p> <p>The 64 Kalās represent the comprehensive skill-based education system of ancient India.</p> <p>Significance:</p> <ul style="list-style-type: none">• Covered arts, sciences, crafts, communication, and life skills• Promoted creativity, vocational competence, and moral values• Integrated theory with practice• Encouraged multidisciplinary learning• Supported personality development and self-reliance	02								
b										
c										
d										
5 a	<p>1. Mention any two of the 64 Kalās</p> <ul style="list-style-type: none">• Gīta (Music)• Citrālekḥā (Painting) <p>2. Differentiate between Tamas, Sattva and Rajas</p> <table><thead><tr><th>Guṇa</th><th>Nature</th><th>Characteristics</th></tr></thead><tbody><tr><td>Sattva</td><td>Purity & harmony</td><td>Knowledge, calmness, balance</td></tr></tbody></table>	Guṇa	Nature	Characteristics	Sattva	Purity & harmony	Knowledge, calmness, balance	02 03 03 02	3	L1
Guṇa	Nature	Characteristics								
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b	<p>Rajas Activity & passion Desire, restlessness, ambition</p> <p>Tamas Inertia & ignorance Laziness, confusion, dullness</p>			
c	<p>3. What is meant by Aṣṭāṅga Vāstu? Give two examples</p> <p>Aṣṭāṅga Vāstu refers to the eight fundamental aspects (limbs) that govern planning and construction in Vāstu Śāstra.</p> <p>Examples (any two):</p> <ul style="list-style-type: none"> • Dik Nirṇaya (orientation/directions) • Bhūmi Parīkṣā (examination of land) 			
d	<p>4. State two advantages of sprinkler irrigation</p> <ol style="list-style-type: none"> 1. Uniform distribution of water over the field 2. Reduced water wastage compared to flood irrigation 			

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distributio n	Particulars		CO 1	CO 2	CO 3	CO 4	L1	L2	L3	L4	L5	L6
	Tes t	Max Marks							—	—	—	—

Course Outcomes:

CO1 Explain the nature, scope, and historical development of Indian Knowledge Systems and differentiate traditional knowledge from modern scientific paradigms

CO2 Analyze the foundational concepts of Indian contributions to linguistics, mathematics, and science, including works of Pāṇini, Piṅgala and others

CO3 Evaluate the applications of traditional Indian technologies in areas such as astronomy, metallurgy, architecture, and medicine.

CO4 Assess the relevance of Indian Knowledge Systems in the context of sustainable development goals and propose methods to safeguard and integrate IKS in contemporary society.