18HU002

IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

Branch:: Information Technology

Subject:: Indian Traditional Knowledge

Year:: November, 2022. Semester :: Seventh Semester

(10X1 = 10 Marks)

1. a) Which is the Sanskrit root (verb form) for the etymological derivation of the word "Yoga"?
Ans: The word 'Yoga' is derived from the Sanskrit root '**Yuj**', meaning 'to join' or 'to yoke' or 'to unite'.

b) Define Ayurveda.
Ans: It is made of two Sanskrit words: Ayu which means Life Veda means the knowledge of.

c) List out some ancient civilizations.
Ans: Harappa civilization, Mohenjo-Daro civilization, Greek civilization, Roman civilization etc…

d) In which year did the Indus valley civilization start?
Ans: There is evidence of settlement in this area as early as **7000 BCE**. The Indus Valley Civilization is often separated into three phases: the Early Harappan Phase from 3300 to 2600 BCE, the Mature Harappan Phase from 2600 to 1900 BCE, and the Late Harappan Phase from 1900 to 1300 BCE.

e) Expand TRIPS.
Ans: Trade Related Aspects of Intellectual Property Rights.

f) Who introduced the concept of Zero?
Ans: Brahmagupta introduced the concept of Zero.

g) What is meant by sustainable development?
Ans: Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

h) Define imperialism.
Ans: The word "imperialism" comes from the Latin term imperium. It means "to command." Imperialism is the policy or act of extending a country's power into other territories, or gaining control over another country's politics or economics.

i) Write any two benefits of Meditation.
Ans: Gaining a new perspective on stressful situations. Building skills to manage your stress. Increasing self-awareness. Focusing on the present. Reducing negative emotions. Increasing imagination and creativity. Increasing patience and tolerance.

j) Give some examples of Traditional Knowledge.
Ans: Traditional knowledge can be found in a wide variety of contexts, including: agricultural, scientific, technical, ecological and medicinal knowledge as well as biodiversity-related knowledge.

Unit –I

2 a) Explain traditional knowledge system during pre-colonial and colonial period.

Ans: The Origin of Traditional Knowledge System can be traced 2 million years. A new history of India was fabricated to ensure that present and future generations.

1) Ancient Monuments [4M]
2) India and the British Imperialism
3) Unfair Trade
4) Imperialist Biases
5) Colonialism and Cultural Imperialism.

Ancient Monuments :

In general, British attitude towards India's historic monuments was negative, except for Curzon. Out of 270 beautiful monuments which existed at Agra alone, before its capture by Lake in 1803, hardly 40 have survived.

India and the British Imperialism :

Perhaps the most important aspect of colonial rule was the transfer of wealth from India to Britain. Several patents that had remained unfunded suddenly found industrial sponsors once the taxes from India started rolling in.

Unfair Trade :

In the early 1800s imports of Indian cotton and silk goods faced duties of 70-80%. British imports faced duties of 2-4 per cent. As a result, British imports of cotton manufactures into India increased by a factor of 50, and Indian exports dropped to one-fourth.

Imperialist Biases :

Britain was not the only beneficiary of colonial rule. British trade regulations even as they discriminated against Indian business interests created a favourable trading environment for other imperial powers. By 1939, only 25 per cent of Indian imports came from Britain, 25 per cent came from Japan, the US and Germany.

Colonialism and Cultural Imperialism :

Two centuries of colonial rule have also had strong impact in the cultural and educational arena. Such colonial-influence thinking also dominates the mindset of the anglophile Indian intelligentsia who mock at ideas of economic and cultural self-reliance. Such decisions ought to be taken in the general national interest and not be swayed by an ideological orientation that stems from colonized mindset.

b) Explain briefly Indian traditional knowledge system.

Ans: If there is one place on the face of this Earth where all the dreams of living men have found a home from the very earliest days when Man began the dream of existence, it is India

1) Shipping and Ship building [6M]
2) Water Harvesting systems
3) Forest management
4) Farming techniques
5) Traditional medicine
6) Mathematics, Logic and Linguistics
7) Folk science
8) Ritual as Knowledge Transmitters

Shipping and Ship building :

India participated in the earliest known ocean-based trading systems. It is known to scholars but not to the general public that Vasco da Gama's ships were captained by a Gujarati sailor. The compass and other navigation tools were already in use at the time. ("Nav' is the Sanskrit word for boat, and is the root word in 'navigation', and in 'navy', although etymology (derivation of word), is not a reliable proof of origin.).

Water Harvesting systems :

Scientists estimate that there were 1.3 million man-made water lakes and ponds across India, some as large as 250 square miles. These are now being rediscovered using

satellite imagery. These enabled most of the rainwater to be harvested and used for irrigation, drinking, etc. till the following year's rainfall.

Forest management :

Many interesting findings have recently come out about the way forests and trees were managed by each village. A careful method applied to harvest medicines, firewood, and building material in accordance with natural renewal rates. There is now a database being built of these 'sacred groves' across India.

Farming techniques :

India's agricultural production was historically large and sustained a huge population compared to other parts of the world. Surpluses were stored for use in a drought year..

Traditional medicine :

This is now a well-known and respected field. Much re-legitimizing of Indian medicine has already been done, thanks to many Western labs and scientists. Many multinationals no longer denigrate traditional medicine and have in fact been trying to secure patents on Indian medicine without acknowledging the source.

Mathematics, Logic and Linguistics :

Besides other sciences, Indians developed advanced math. Including the concept of zero, the base-ten decimal system now in use worldwide, and many important trigonometry and algebra formulae. They made several astronomical discoveries.

Folk science :

Besides the above, another category of Traditional Knowledge Systems is non-literate folk science. Western science as a whole has condemned and ignored anything that it did not either appropriate or develop, as being magic and superstition. However, in countries such as India that have cultural continuity, ancient traditions survive with a rich legacy of folk science.

Ritual as Knowledge Transmitters :

The tribal Oraons (to roam) in remote areas of Jharkhand have doctors called 'Pahan', in which they send patient into a sort of trance. The Pahan then helps sort out problems, provides remedies for ailments, resolves social conflicts of the village society, etc. One could dismiss this as superstition; but this is also considered a traditional method of reaching the unconscious.

(OR)

3 What is the role of Ayurveda in the Indian Traditional Medicine? [10M]

Ans: **Ayurveda :**

Gradually accumulated practical and systematic medical knowledge in India is called Ayurveda. Antiquity of system: Medicinal knowledge gained over trial and error over thousands of years in India and Central Asia/South-East Asia has been systematised some four thousand years ago in a system of medicine called Ayurveda.

Ayurveda is made up of two Sanskrit words: **Ayu** which **means life** and **Veda** which **means the knowledge** of. To know about life is Ayurveda. However, to fully comprehend the vast scope of Ayurveda let us first define "Ayu" or life. According to the ancient Ayurvedic scholar Charaka, **"ayu"** is comprised of **four** essential **parts**. The combination of **mind, body, senses and the soul.**

Simple Definition

Ayurveda is a holistic system of medicine from India that uses a constitutional model. Its aim is to provide guidance regarding food and lifestyle so that healthy people can stay healthy and folks with health challenges can improve their health.

There are several aspects to Ayurveda that are quite unique:

- Its recommendations will often be different for each person regarding which foods and which lifestyle they should follow in order to be completely healthy. This is due to its use of a constitutional model.

2. Everything in Ayurveda is validated by observation, inquiry, direct examination and knowledge derived from the ancient texts.

3. It understands that there are energetic forces that influence nature and human

beings. These forces are called the **Tridoshas**.
4. Because Ayurveda sees a strong connection between the mind and the body, a huge amount of information is available regarding this relationship.

Origin
The origins of this system of course are lost in time.
In legend it is said to have been taught by the creator, Brahma, to the Prajapati Daksha, one of the lords of the animals.
He taught it in turn to the divine twins called the Aswins. These Aswins are the heavenly healers.
They taught Indra, the chief of the shining ones. The personages mentioned were deities of early Vedic times.
Dhanvantari is the name of the physician of the Gods.
Ayurveda is the name, which the ancient Indians gave to the science of life.

- As such, Ayurveda means the science, by the knowledge of which life can be prolonged or its nature can be understood.
- There are four sacred books of India, eg Rig-Veda, Samveda, Yajurveda, and Atharvaveda. These Vedas are believed to be not composed by man but they were by the Gods to sages or they were revealed to the sages.
- Ayurveda is a sub-section or Upanga of Atharvaveda.
- Lord Divodasa Dhanvantari to Sushruta, Pauskalavata, Aurabha, Vaitarna and others revealed the origin of Ayurveda.
- In Susruta-Samhita Lord Dhanvantari is referred to as master of Salya Tantra or major surgery.
- Lord Dhanvantari claims to have received the knowledge of Ayurveda from Indra, the King of Gods.
- In Susruta-Samhita the origin of medical science is discrete as follows:
- Dhanvantari, the King of Banares or Kashi, sitting in his hermitage, encircled by sacred sages.
- Susruta addressed Lord Dhanvantari and said, "We are sorry to see men afflicted by diseases.
- We wish to learn Ayurveda from you cure diseases of these pleasure-seeking men, to protect our own bodies, and for the general good of mankind. Please do thou teach us this Science of Life."
- Lord Dhanvantari replied, "You are qualified and fit to receive the instructions in Ayurveda."
- Brahma composed Ayurveda in one hundred thousand slokas and a thousand chapters.
- In the Rig Veda, over 60 preparations were mentioned that could be used to assist an individual in overcoming various ailments.
- The Rig Veda was written over 6,000 years ago but really Ayurveda has been around even longer than that.
- Ayurveda is more than just a medical system. It is a Science of Life.
- We are all part and parcel of nature. Just as the animals and plants live in harmony with nature and utilize the Laws of Nature to create health and balance within their beings, we, too, adhere to these very same principles.
- It is fair to say that Ayurveda is a system that helps maintain health in a person by using the inherent principles of nature to bring the individual back into equilibrium with their true self.
- In essence Ayurveda has been in existence since the beginning of time because nature's laws have always governed us.

Texts
Before the advent of writing, the ancient wisdom of healing, prevention and longevity was a part of the spiritual tradition of a universal religion.
Medical knowledge from all areas of the world gathered in India, and the famous **sage** Vyasa, put into writing the complete knowledge of Ayurveda, along with the more directly spiritual insights of ethics, virtue and self realization.

These books are known as the Vedas; Rig, Sama, Yajur and Atharva.
There were two main schools of Ayurveda at that time, Atreya-the school of physicians; and Dhanvantari—the school of surgeons.

The Great Three Classics of Ayurveda

- Caraka Samhita
- Sustra samhita
- Astanga Hrdayam.
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The Lesser Three Classics of Ayurveda

- Sarngadhara Samhita
- Bhava Prakasa
- Madhava Nidanam

The Branches of Ayurveda

Kayachikitsa:	Internal medicine
Bala:	Paediatrics
Graha:	Treatment of diseases arising from possession by pathogens, evil spirits, etc. Mainly diseases of a mental nature
Urdhvanga:	Dealing with the eyes, ear, nose, throat and dentistry
Salya:	Surgery including plastic surgery
Danstra:	Insect bites, poisons (toxicology)
Rasayana:	Diseases of advancing age
Prasuti:	Gynaecology and obstetrics

Unit –II

4 Illustrate the historical importance of social change on Traditional Knowledge Systems.
Ans: The Earliest evidence of technological progress in the Indian sub-continent is to be found in the remains of the Harappan Civilization.

1) Social Conditions and Technological Progress [10M]
2) The Impetus for Metallurgy
3) Social Needs and Technological Applications
4) Scientific Rationalism and Technological Efficacy (success)
5) Cultural Mores (norms/rules) and Technological Innovation
6) State Support of Technology
7) Limitations of Pre-industrial Manufacturing
8) India and the Industrial Revolution

Social Conditions and Technological Progress :

It is quite possible that the decline in civil society extended to other areas such as agricultural planning and maintenance of irrigations systems making the civilization more vulnerable to natural disasters such as droughts, floods, fires or earthquakes- thus contributing to the eventual extinction of that vibrant civilization. This suggests that technological progress cannot be divorced from social conditions that may either encourage the progress of technology or conversely cause civilizations that may be (in relative terms) quite advanced to stagnate and even decline.

The Impetus for Metallurgy :

Monumental architecture required considerable advances in the technology of lifting, loading and transportation, building construction ramps, scaffolding, and related tools and implements. As in ancient Egypt or Babylon, appropriate techniques also had to be developed and implemented in India. The discovery of iron thus played an essential role in the development of monumental architecture in India, which may have in turn given a further impetus to the development of metallurgical skills.

Social Needs and Technological Applications :

More often than not, social needs (as arising from geographic, climactic or living conditions) have been the primary impetus for technological progress in society.The

long dry months that most regions of India had to deal with, led to numerous innovations in water-management techniques. Irrigation canals, wells of different types, storage tanks and a variety of water harvesting techniques were developed throughout the sub continent.

The Harappans were not alone in creating water management solutions. Irrigation works of enormous size were undertaken time and time again.

Scientific Rationalism and Technological Efficacy (success) :

A foundation of scientific knowledge, rational thinking and practical experimentation can be essential to the process of making technological discoveries.This is not to say that Indian society was entirely rational.

In all ancient societies (and even modern ones), superstitions, religious beliefs, reliance on astrology, numerology or the advice of seers', palmists and fortune-tellers have impinged on the scientific process and consequently hindered the progress of technology.

Cultural Mores (norms/rules) and Technological Innovation :

Cultural preferences also impelled technological innovations.

The analysis of moods and emotions led to elaborate theories on the role of color and design in inducing psychological well-being.Treatises on art and architecture emphasized the importance of color. As a result, the use of color in decorating household artifacts, textiles, furniture, and public and private dwellings became widely prevalent and a matter of conscious choice.

Discoveries concerning the manufacture and application of natural and artificial dyes quickly followed.

State Support of Technology :

Without the support of technologically inclined nobility(kings), without grants from the royal treasuries, many of the technological developments that took place in the field of water-management, construction and metallurgy simply would not have taken place.

Limitations of Pre-industrial Manufacturing :

Although Indian artisans could produce goods of exceptional quality, Indian manufacturing (much of the world also) was highly labor intensive.

There was insufficient investment in augmenting and expanding the range of available labor-saving tools, manufacturing in medieval India involved considerable specialization of labor. India had a very large pool of relatively cheap skilled labor trained in a variety of specialized tasks.

Since **most manufactured goods catered largely to the elite, demand was relatively limited** and the available labor pool was more than sufficient to meet those needs.

India and the Industrial Revolution :

Perhaps the most important forces that inhibited the growth of science and technology in India was the relative prosperity that India enjoyed vis-à-vis the rest of the world.A mild climate meant that the peasantry and working class could survive relatively cheaply. And the huge trade surplus the country enjoyed enabled the nobility and the middle classes to live lives of relative luxury and comfort. The forces of parasitism and conservatism prevailed over more radical forces.

(OR)

5 Explain about Vastu Sastra in detail.

Ans: **[10M]**

1.Principles of vastu are simple
2.Philosophical content of indian architecture
3.Secular and Spitural Fusion.

The Science of vastu is considered as integral part of the Indian home. From ancient Literature , we gather that vastu wastreated as the science of construction of temples and royal palaces. In Amarakosa a Sanskrit dictionary written by Amara Simha and epics like Skanada Purana, Agni Purana, Garuda Purana and Vishnu Purana, the principles pertaining to the science of vastu had been enunciated . Apart from these works , epics like Bruhatsamhitha, Vishnu dharmottara Purana, Viswakarna vastu satra, samarangana

sustra dharana and Aparajita Prutchcha, have been responsible for vastu taking shape as a science.

In mastya Purana, Seventeen preceptors of vastu have been mentioned. They are Bhrugu,Atri,,vasista,Viswakarma,Maya,Narada,Nagnajit,Visalaksha,Purandara,Brahma, Kumaraswamy,Nandisa,Sounaka,Bhargava,Vasudeva,Anirudha,Sukra and Bruhaspathi. The first official treatise on vastu ,the kasyapa silpa has been attributed to sage kasyapa. Vasti shastra has clear-cut definitions—vastu means abode or a house construction.Vastu shastra considers a house to be a living soul, having prana. And therefore,this science in a way defines the relationship between man and the cosmos. Vastu shastra is a voluminous and scattered ancient Indian literature dealing with knowledge of architecture, iconography and art relating to structure and buildings.Vastoshpati used in Rig Veda and is meant to provide protection, happiness and prosperity in this life as well as after death.

Principles of Vastu Shatra are mainly dependent on the arrangement of five essential elements of the world ,i.e. earth, water, fire, air and sky in their proper order and proportions to have better living conditions in a building.

Various unseen forces affect human body vertically, horizontally, diagonally and perpendicularly. For example: Sun Energy, Lunar Energy from the moon, Magnetic Energy, Gravitational Energy, Molecular Energy, Fire Energy, Wind Energy, Microwave Energy, Electrical Energy, Light Energy, Sound Energy.

Principles of vastu are simple :

Divine Energy enters the site from the Northeast and is directed towards the Southwest. Half of it flows towards the Southeast, and half flows towards the Northwest before rising and flowing on towards the Southwest.

The Northeast has a double positive current and the Southwest a double negative. South of Southeast and West of Northwest are positive. North of Northwest and East of Southeast are negative.

The Northeast is called Deva Moola or God's Place. Any time in nature there is water and light, there will be life. The energy of the Northeast is very light and brilliant.

The East is the direction of Knowledge, Southeast is the direction of Fire, South is the direction of Death, Southwest is the direction of Devils, West is Rain, and northwest is Vayu or Wind force.

North, Northeast and East are in the positive field of the site. South, Southwest and West are in the negative field.

A mountain or a hill in the Southwest can bring great fortune and good health. Heavy objects should not be placed in the Northeast, as no energy will be able to enter the site closed northeast = dead plot. The northeast should be very low and open.

The directions, in which one eats, sleeps and cooks, are very important.The Northeast strongly affects the emotions, as the element is water. The master bedroom should be in the Southwest. The Northwest quadrant would be the second choice. Southeast bedrooms can bring great irritability and insomnia.

The head should be directed towards the South while sleeping or towards the east if a student. It is best to face east when studying. The kitchen should be in the Southeast. Northwest is the second choice.

It is not good to cook or to eat in the Northeast.

Philosophical content of indian architecture:

Unlike the Western religions, which have little philosophical content and belief in the "One God" is mandatory; many of India's ancient religions were not religions in the narrow sense in which religion is construed today. India's early Buddhists were predominantly atheists.

Secular and Spiritual Fusion:

As physical embodiments of philosophical systems that combined the secular with the spiritual, India's stupas and temples were not just religious monuments but also cultural centres that had both spiritual and secular significance.

Unit –III

6 Explain about astronomy and astrology. [10M]

Ans: Astronomy :

In India the first references to astronomy are to be found in the Rig Veda, which is dated around 2000 B.C. Vedic Aryans in fact deified(treat as God) the Sun, stars and comets. Astronomy was then interwoven with astrology.
Indians have involved the planets (called Grahas) with the determination of human fortunes. The planets Shani, i.e. Saturn and Mangal, i.e. Mars were considered inauspicious.In the working out of horoscopes (called Janmakundli), the position of the Navagrahas, nine planets plus Rahu and Ketu (mythical demons, evil forces) was considered. The Janmakundali was a complex mixture of science and dogma (established opinion). But the concept was born out of astronomical observations and perception based on astronomical phenomenon. In ancient times personalities like Aryabhatta and Varahamihira were associated with Indian astronomy. This science had advanced to such an extent in ancient India that ancient Indian astronomers had recognised that stars are same as the sun, that the sun is center of the universe (solar system). Ancient Indians also stated that the circumference of the Earth is 5000 yojanas. One yojana being 7.2 kms.

The Calculation of Eclipses and the Earth's Circumference

In Indian languages, the science of astronomy is today called Khagola Shastra. The word Khagola perhaps is derived from the famous astronomical observatory at the University of Nalanda, which was called Khagola. It was at Khagola that the famous 5th century Indian astronomer Aryabhatta studied and extended the subject.Varanasi or Kashi is one site where the Kumbha Mela is held. The dates for the Kumbha are derived from solar calculations and are declared 12 years in advance.

Aryabhatta is said to have been born in 476 A.D. at a town called Ashmaka in today's Indian state of Kerala. When he was still a young boy he had been sent to the University of Nalanda to study astronomy. He made significant contributions to the field of astronomy.He also propounded the heliocentric theory of gravitation, thus predating Copernicus by almost one thousand years.Aryabhatta's Magnum Opus, the Aryabhattiya was translated into Latin in the 13th century. Through this translation, European mathematicians got to know methods for calculating the areas of triangles, volumes of spheres as well as square and cube root. Aryabhatta's ideas about eclipses and the sun being the source of moonlight may not have caused much of an impression on European astronomers as they know of these facts throught the observations of Copernicus and Galileo. Another Indian astronomer, Brahmagupta estimated in the 7th century that the circumference of the earth was 5000 yojanas. A yojana is around 7.2 kms. Calculating on this basis we see that the estimate of 36,000 kms as the earth's circumference comes quite close to the actual circumference known today.

The Heliocentric Theory of Gravitation (SUN centric solar system)

There is an old Sanskrit sloka (couplet), which is as follows:

Sarva Dishanaam, Suryaha, Suryaha, Suryaha."

This couplet, which describes the night sky as full of suns, indicates that in ancient times Indian astronomers had arrived at the important discovery that the stars visible at night are similar to the sun visible during day time.

It was recognised that the sun is also a star, though the nearest one. This understanding is demonstrated in another sloka, which says that when one sun sinks below the horizon,

a thousand suns take its place.

- Brahmagupta in the 7th century had said about gravity, "Bodies fall towards the Earth as it is in the nature of the Earth to attract bodies, just as it is in the nature of water to flow."
- About a hundred years before Brahmagupta, another astronomer, Varahamihira had claimed for the first time perhaps that there should be a force which might be keeping bodies stuck to the Earth, and also keeping heavenly bodies in their determined places.
- It was also recognised that this force is a tractive force. The Sanskrit term for gravity is Gurutvakarshan, which is an amalgam of Guru-tva-akarshan.
- Akarshan means to be attracted.
- The sun was recognised by all ancient people to be the source of light and warmth.
- The Sun (Surya) was one of the chief deities in the Vedas. He was recognised as the source of light (Dinkara), source of warmth (Bhaskara).

Astrology :

Growing popularity of Jyotisha, which is of course the Sanskrit name for Vedic astrology.

There are many systems of astrology from many cultures the world over.

The Babylonians, the Chinese, the Egyptians, the Greeks, the Mayans, and the Hindus.

- The astrology of ancient India is known by the name Jyotisha, which in Sanskrit means "the science of light".
- It is also known as Hindu Astrology, and as previously said, Vedic Astrology, for it comes from the ancient Vedas of India, reputed to be thousands of years old.
- Vedic astrology originally comes to us from the Rig Veda, the oldest of the four Vedas, the spiritual Bible of ancient India.
- The Vedas were originally an oral tradition passed down from family to family, generation to generation. They contain the spiritual teachings of Hinduism.
- Much latter in their history the Vedas were put in a written form, and so it is with Jyotisha as well.
- We also find astrological references abound in the great oral Epics of India, the Mahabharata and the Ramayana; particularly in the most famous portion of the Mahabharata, the Bhagavad Gita.
- Such ancient works as the Vedanga Jyotish and the Surya Siddhanta further shed light on both the astronomy and astrology of ancient India.
- About the 5th century A.D., many of the previous oral astrological teachings were put into written form.
- Many of India's most well-known astrologer-sages lived at this period of time. Such personages as Parasara, Vaharamihira, Kalyana Varma and Mantreswar and their masterpieces on Vedic astrology; Hora Shastra, Brihat Jataka, Saravali and the Phaladeepika are still readily available today, having been translated into English many times over.

- In our times, such prolific Indian authors, as the late Dr. B.V. Raman have popularized Vedic astrology in Western culture.
- In the last decade there has been a resurgence of Vedic astrology in the United States facilitated by such American authors as James Braha, David Frawley and Ronnie Gale Dreyer.
- Vedic astrology is a Vedanga, one of the six limbs of the Vedas and thus it is a natural extension of the spiritual belief systems of Hinduism.
- This value system of ancient India is very different in its vaules and conceptual view of life from modern Western cultural viewpoint.
- For example, the purusharthas, or the four pursuits of life, as outlined in the Vedas are: Dharma, Artha, Kama, and Moksha.
- The Sanskrit word Dharma, means our purpose/duty in life. The word Artha reflects our attitude toward the accumulation of money and resources. The word Kama reflects the desires. Lastly, the word Moksha reflects the desire of every soul to enlighten itself from the confinement of this world.
- These pursuits are qualified and clarified in the fundamentals of Jyotisha.
- Frameworks, such as this, and the Hindu doctrines of Samsara, the belief in past lives, and Karma, lend a unique perspective to a Vedic astrology reading. The earliest of the Vedas exclaims: "If you want to know your swadharma (personal purpose in life) consult a jyotishi (a Vedic astrologer)."
- Vedic astrology offers an ancient astrological perspective that asks these very same profound and confounding questions(Ex: Who am I?, Why I am here?..), questions asked by the very authors of the Vedas, the Puranas, the Brahmanas, the Upanishads, and the Bhagavad Gita, who asked these very same questions some 5000 years ago.

(OR)

7 Discuss Indian traditional knowledge and Indian union. [10M]

Ans: Protection and the Legislative Frameworks in India
• The Patents Act, 1970
• Sue Generis Sytem: Proposals
• Trade Secrets and Know-how
• Geographical Indications Bill
• Protection of Plant Varieties and Farmers' Rights Bill Rights of Communities
• Monitoring information on patent applications world-wide

At present the Indian Government has no formal laws to prevent anyone from appropriating knowledge from the traditional community. It is recognised that protecting TKS innovations is quite a complex matter. The Intellectual Property Rights legislation that is in place in India has, to a large extent, been amended to provide some protection for TKS, having regard still to the parameters of the World Trade Organisation (WTO)--Trade Related Aspects of Intellectual Property Rights (TRIPS). These include the Patents Act of 1970, the Trade Marks Act, the Designs Act and the Copyright Act.

Sui Generis System: Proposals:

Prof. Anil K. Gupta, Senior Professor at the Indian Institute of Management (IIM), Ahmedabad, said that there are proposals to develop a sui generis system for inventions that cannot be protected under the current patent regime. This will create a two-tier patent system in India and provide grants of petty patents also referred to as utility patents.

Trade Secrets and Know-how:

According to Prof. Anil K. Gupta (IIM), discussions are in progress on the implications of TRIPS for the protection of traditional knowledge, improvements therein and the uncoded folkloric knowledge known to only one or only a few healers, herbalists or local communities.

Geographical Indications Bill:

The bill aims to create a register for purposes of establishing protection indications which identify a good as originating in a territory or region or locality, where a given quality, reputation or other characteristics of the good is essentially attributable to its geographical origin.

Protection of Plant Varieties and Farmers' Rights Bill:

The word "farmer" in India is used to refer to local subsistence farmers and NOT large-scale commercial farmers which is closer to our target group of the farming population in South Africa's rural areas.

Rights of Communities:

Any community or their representative can lay claim to any variety granted protection under the Act. A patenting authority would verify such claims. If a claim is found to be valid, compensation would be paid to the community which submitted the claim.

Monitoring Information on Patent Applications World-wide:

Another bold approach followed by India is to engage in "precedent setting" by challenging existing patents that are based on "prior" knowledge and to which India can lay claim.

Frameworks for Supporting R&D Activities in the Area of TKS:

As early as 1982, the Indian Government initiated a TKS National Programme with the aim of auditing, documenting and supporting research associated with Traditional Knowledge Systems.

Unit –IV

8 Explain in detail about the Traditional knowledge is applied in different sectors. [10M]

Ans: Traditional Knowledge System (TKS) is the know-how of the people, gathered through day to- day walk of life, to overcome the hurdles and tap the potentialities from their immediate neighborhood. In fact, TKS evolved in a specific location within certain physical and sociocultural environment, where it reflects people's specific knowledge, understanding as well as observational and experimental information about their dwelling environments, along with skill and technology to design a lifestyle in that specific environmental context. TKS represents information, knowledge, skill and technology along with standard management practices, which are defined through the cultural systems. In the contemporary world when human civilization is facing the challenges of climate change, natural disaster, biodiversity loss, destabilized ecological services, food and nutritional inequality, problems of sanitation and health and many others , there is a need to give emphasis on TKS for searching alternative solutions or ways to face the challenges and design a sustainable lifestyle.

Sometimes it is referred to as an oral traditional for it is practiced, sung, danced, painted, carved, chanted and performed down through millennia. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, forestry and environmental management in general.

TKS – Nature and Type :

The evolution of TKS is very much local in nature and associated with a particular environmental and/or socio-cultural context. It is designed and developed by the local community through their constant observation, trial and modification/customization to match with its appropriateness. Therefore, TKS has the characteristics of local, empirical, time tested dynamisms. Moreover, TKS is always handed over or transferred from one generation to another and also between communities mostly orally and/or visually. From its domain of application and associated management approaches, TKS

can be categorised as (i) Traditional Ecological Knowledge (TEK), (ii) Traditional Technical Knowledge (TTK) and (iii) Traditional Value and Ethics (TVE). TEK represents knowledge associated with natural resources and environmental management, TTK refers to knowledge associated with tools and appliances used and TVE refers to value, norm, institution and policy framework evolved with traditional knowledge based practices.

Traditional Water harvesting practices :

There are many age-old-practices of harvesting water in the country, basically to collect rainwater, restore surface flow of water, ground water recharging, etc. These are based on simple technology and defined management principles.

A step well is exactly what it sounds like- steps down to a well. The earliest step wells date back to about 550 AD was developed in India as a necessity for areas suffering from torrential seasonal rains.

Traditional agricultural practices :

In many areas of the country, traditional agricultural practices are still considered important. These practices are followed in selection of crop varieties, land selection, land preparation, soil fertility management, pest and disease management, irrigation, harvesting, post-harvest management, seed preservation, etc. Moreover there are different tools and implements used for the purposes, some of which are mentioned below: There are different shapes and sizes of ploughs and hoes used for tilling of soil in the country, which varies from region to region based on soil quality, terrain condition and the crop used for cultivation. Not only that, with variations in the crop varieties, the tools used for harvesting also changes .Best example is variations in the different shape and size of sickle used in different areas from time immemorial. Similarly there are different types of land cultivar in different regions, which are potential source for climate change adaptation; because many of such crop varieties are either draught and/ or flood tolerant.

Weather Forecasting/ Prediction :

There are many methods of weather prediction practiced by the farmers in different parts of the country. For example, farmers in Himachal Pradesh believe that if the honeybee flies toward northern hill there will be no rainfall, if they fly towards south there will be good rainfall. On the other hand, in Rajasthan many local communities believe that appearance of many butterflies together indicate a good rain and get better crops.

Traditional practices in animal husbandry :

Traditional knowledge regarding animal husbandry can be considered as old as domestication of various livestock species. But these practices are in vogue throughout rural India and those are documented little and hence, there are possibilites of eroding out of these knowledge systems. For example, traditional practice of the feeding includes crop residues like straw, stalks, stovers, tops and crop thrush like wheat, paddy straw, etc as well as crop by-products that includes Bran, Husk, straw of Wheat, Rice, Bajra and Maize. Women have a very important role in the traditional method of integrating agriculture with animal husbandry. Traditional knowledge about treatment of the animal disease includes both preventive and curative practices based on local medicine using herbs. Women understand the importance of each herb and plant combination. They understand which leaves are best for which fodder; and their suitability for milching of the cattle and preparing highly concentrated feeds for the animals for improving milk yield.

(OR)

9 Define Yoga? Explain different types of Yogasanas. [10M]

Ans: The word "Yoga" is derived from the Sanskrit root ‘yuj’ meaning "to join", "to yoke" or "**to unite**".

YOGĀSANAS :

A. Standing Postures:

TĀḌĀSANA (Palm Tree Posture): This āsana brings stability in the body, helps to clear up congestion of the spinal nerves and corrects faulty posture.

VṚUKṢĀSANA (The Tree Posture): Helps to improve neuro-muscular coordination, balance, endurance, alertness and concentration.

PĀDA-HASTĀSANA (The Hands to Feet Posture): Makes the spine flexible, improves digestion, and helps in overcoming menstrual problems.

ARDHA CHAKRĀSANA (The Half Wheel Posture): Makes the spine flexible and strengthens the spinal nerves and muscles, helps in management of cervical spondylosis.

TRIKONĀSANA (The Triangle Posture): Makes the spine flexible, Strengthens calf, thigh and waist muscles and improves lungs capacity

B. Sitting Postures:

BHADRĀSANA (The Firm/Auspicious Posture): Helps to keep the body firm and stabilizes the mind, helps during pregnancy and relieves abdominal pain often experienced during menstruation.

VAJRĀSANA (Thunderbolt Posture): This āsana is good for digestion, strengthens thigh muscles and calf muscles.

- **USṬRĀSANA (Camel Posture):** Uṣṭrāsana is extremely useful for defective eyesight. This is useful in relieving back and neck pain. It helps to reduce fat over the abdomen and hips. It is helpful in digestive problems and cardio-respiratory disorders.
- **ŚAŚAKĀSANA (The Hare Posture):** Helps to reduce stress and anxiety. Tones up reproductive organs, relieves constipation, improves digestion and helps to relieve back pain.
- **VAKRĀSANA (The Spinal Twist Posture):** Helps to increases flexibility of the spine, Stimulates pancreas functions and helps in the management of diabetes.

C. Prone Postures:

Makarāsana (The Crocodile Posture): Promotes relaxation of the whole body. Helps in recovery of back problems. Counters stress and anxiety.

Bhujaṅgāsana (The Cobra Posture): This āsana relives stress, reduces abdominal fat and relives constipation. Helps to relieve backache and bronchial problems.

Śalabhāsana (The Locust Posture): Relieves in sciatica and lower backache. Helps to reduce fat in the thighs and buttocks, good in weight management. Helps to improve lungs capacity.

D. Supine Postures:

Setubandhāsana (The Bridge Posture): Relieves depression, anxiety and strengthens lower back muscles. Stretches abdominal organs, improves digestion and helps to relieve constipation.

- **Uttāna Pādāsana (Raised feet posture):** It balances the navel centre (Nābhi, Maṇipuracakra). It is helpful in relieving abdominal pain, flatulence, indigestion and diarrhea. It strengthens the abdominal and pelvic floor muscles. Effective in overcoming depression and anxiety.
- **Pavana Muktāsana (The Wind Releasing Posture):** Removes constipation;

gives relief from flatulence, decreases the bloating sensation in the abdomen and aids digestion. Generates deep internal pressure, improves stretching of the highly complicated network of muscles, ligaments and tendons in the pelvis and waist region. It tones up the back muscles and spinal nerves.

- **Śavāsana (The Corpse/ Dead Body Posture):** Helps to relieve all kinds of tensions and gives rest to both body and mind.

Kapālabhāti: It rejuvenates the whole body, and keeps the face glowing and vibrant. It strengthens the nervous system and tones up the digestive organs. It is useful in treating cold, rhinitis, sinusitis, asthma and bronchial infections

Prānāyāma:

Naḍīśodhana or anuloma viloma prānāyāma (Alternate Nostril Breathing): Induces tranquillity and helps to improve concentration. Increases vitality and lowers the level of stress and anxiety. It alleviates cough disorders.

Śītalī Prāṇāyāma: It has cooling effect on body and mind. It is beneficial for persons suffering from high blood pressure. It satisfies thirst and appeases hunger. It relieves indigestion and disorders caused by phlegm (cough) and bile (pitta) It destroys the disorders of gulma (chronic dyspepsia) and spleen or other related diseases. It is beneficial for skin and eyes.

Bhrāmarī Prāṇāyāma (Bhrāmarī Rechaka): The practice of Bhrāmarī relives stress and helps in alleviating anxiety, anger and hyperactivity. The resonance effect of humming sound creates a soothing effect on the nervous system and mind. It is a great tranquiliser

- **Dhyāna:** Meditation is the most important component of Yoga practice. It helps the practitioner to eliminate negative emotions like fear, anger, depression, anxiety and to develop positive emotions. Keeps the mind calm and quiet. Increases concentration, memory, clarity of thought and willpower. Rejuvenates the whole body and mind giving them proper rest. Meditation leads to self-realisation.

- **Sankalpa:** I commit myself to remain in a balanced state of mind all the time. It is in this state that my development reaches its greatest possibility. I commit to do my duty to self, family, at work, to society, and to the world, for the promotion of peace, health and harmony.

- **Śhantih pātha:** May All become Happy, May All be Free from Illness. May All See what is Auspicious, May no one Suffer. Om Shanthi, Shanthi, Shanthi.