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III/IV B.Tech (Regular) DEGREE EXAMINATION

February, 2021

Fifth Semester

Time: Three Hours

Electrical & Electronics Engineering

Indian Traditional Knowledge

Maximum : 50 Marks

Answer ALL Questions from PART-A.

(1X10 = 10 Marks)

Answer ANY FOUR questions from PART-B.

(4X10=40 Marks)

Part - A

1. Answer all questions

(1X10=10 Marks)

- | | | |
|----|---|-----|
| a) | According to vastu shastra the principle god of north-east direction. | CO1 |
| b) | The main Occupation of people in Indus valley civilization ? | CO1 |
| c) | Who is called as the father of Surgery. | CO2 |
| d) | Who Outlined the process of metal extraction in 4 th century? | CO2 |
| e) | Which Mughal Emperor played a prominent role in the development of Mughal Architecture? | CO3 |
| f) | Name any two supine postures in yoga. | CO4 |
| g) | When is International Yoga day celebrated? | CO4 |
| h) | Name the Indian scientist who gave the concept of negative numbers. | CO3 |
| i) | Abbreviate AYUSH? | CO1 |
| j) | Write any one benefit and caution while performing Bhujagasana. | CO4 |

Part - B

- | | | |
|----|---|-------|
| 2. | Explain about the traditional knowledge system of India during colonial and pre-colonial period?CO1 | (10M) |
| 3. | Explain about the role of Ayurveda in the Indian Traditional medicine. CO1 | (10M) |
| 4. | Explain about the vastu shashtra and its significance in Indian culture. CO2 | (10M) |
| 5. | Explain about the Indian Production and construction technology. CO2 | (10M) |
| 6. | Explain the frameworks for Supporting R&D Activities in the Area of TKS. CO3 | (10M) |
| 7. | Explain in detail about the Indian astronomy. CO3 | (10M) |
| 8. | Explain about Sadilaja/Cālana Kriyās /Loosening Practices in Yoga. CO4 | (10M) |
| 9. | Explain in detail about the sitting and prone postures in Yoga. CO4 | (10M) |



III/IV B.Tech Regular Degree Examination
Electrical & Electronics Engineering
Subject Indian Traditional knowledge (18EE505)
Scheme of Valuation

1. Answer all questions, each question carry 1Mark

10*1=10M

- a) God
 - b) Agriculture
 - c) Susrutha
 - d) kautilyas Arthashastra
 - e) Shajahan
 - f) 1.Setubandhasana(The bridge posture),2.Uttanapadasana(Raised feet ppopsture)
 - g) June 21 st
 - h) Brahma Gupta
 - i) Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy.
- h)

Benefits

- ◆ This *āsana* relives stress, reduces abdominal fat and relives constipation.
- ◆ Helps to relieve backache and bronchial problems.

Caution

- ◆ Those who have undergone abdominal surgery should avoid this *āsana* for 2-3 months.
- ◆ Those who suffer from hernia, ulcers should not practice this *āsana*.

Part-B

2. Two centuries of colonial rule have also had a strong impact in the cultural and educational arena.

- India continues to be represented in a form that is often a caricature of Indian reality.
- Today there are Indian economists, social developers, and scholars who are working hard to revitalize many TKS.
- TKS did provide the necessary life-security and popular coping mechanisms.

Two centuries of colonial rule have also had a strong impact in the cultural and educational arena. Much of Western historiography has been shaped by thinly veiled colonial attitudes that continue to dominate the intellectual and philosophical space in the field of Indology, comparative studies and in anthologies of world history and culture. India continues to be represented in a form that is often a caricature of Indian reality. Even when the Indian historical record is not treated with outright contempt, condescension and superficiality taint mainstream writings on India.

While India was often a source of admiration (or grudging envy) prior to colonization, the British victory in India led to a sea change in how India came to be viewed and characterized in the West. Not only was India's physical wealth expropriated by colonization, Western social scientists, philosophers and historians attempted to do the same in the cultural and intellectual space. Today, there are Indian economists, social developers, and scholars who are working hard to revitalize many TKS.

➤

200 - 700 BC: Birth of Buddhism and the medicine Buddha, considered the great healer of the time.

Patanjali wrote the Yoga Sutras, documented Sanskrit grammar and contributed to Ayurveda with the sutras. The first medical book on Ayurveda was published, the "*Astanga Hridayam*".

700-1000: Ayurveda declined with the Muslim invasion which translated Ayurveda to Unani medicines.

1200-1300: The "*Caraka Samhita*" was published, the most complete text on Ayurveda including pulse diagnosis, herbology and surgery.

1858-1947: British occupation, Ayurvedic schools were closed, western medicine prevailed, Britain left India in 1947.

Present: Ayurvedic schools in India currently teach both Ayurveda and western medicine.

HISTORY OF AYURVEDA

Introduction:

- The evolution of the Indian art of healing and living a healthy life comes from the four Vedas namely : **Rig veda , Sama veda ,Yajur veda and Atharva veda**. Ayurveda attained a state of reverence and is classified as one of the Upa-Vedas - a subsection - attached to the **Atharva Veda**.
- The origin of Ayurveda could be roughly traces back to **5,000 years old**
- The **Atharva Veda** contains not only the magic spells and the occult sciences but also the **Ayurveda that deals with the diseases, injuries, fertility, sanity and health**.

Introduction

- **Vaastu -Shastra** is a Vast and ancient science of living.
- The word **Vaastu** is derived from the root '**Vas**' which means '**to reside**'.

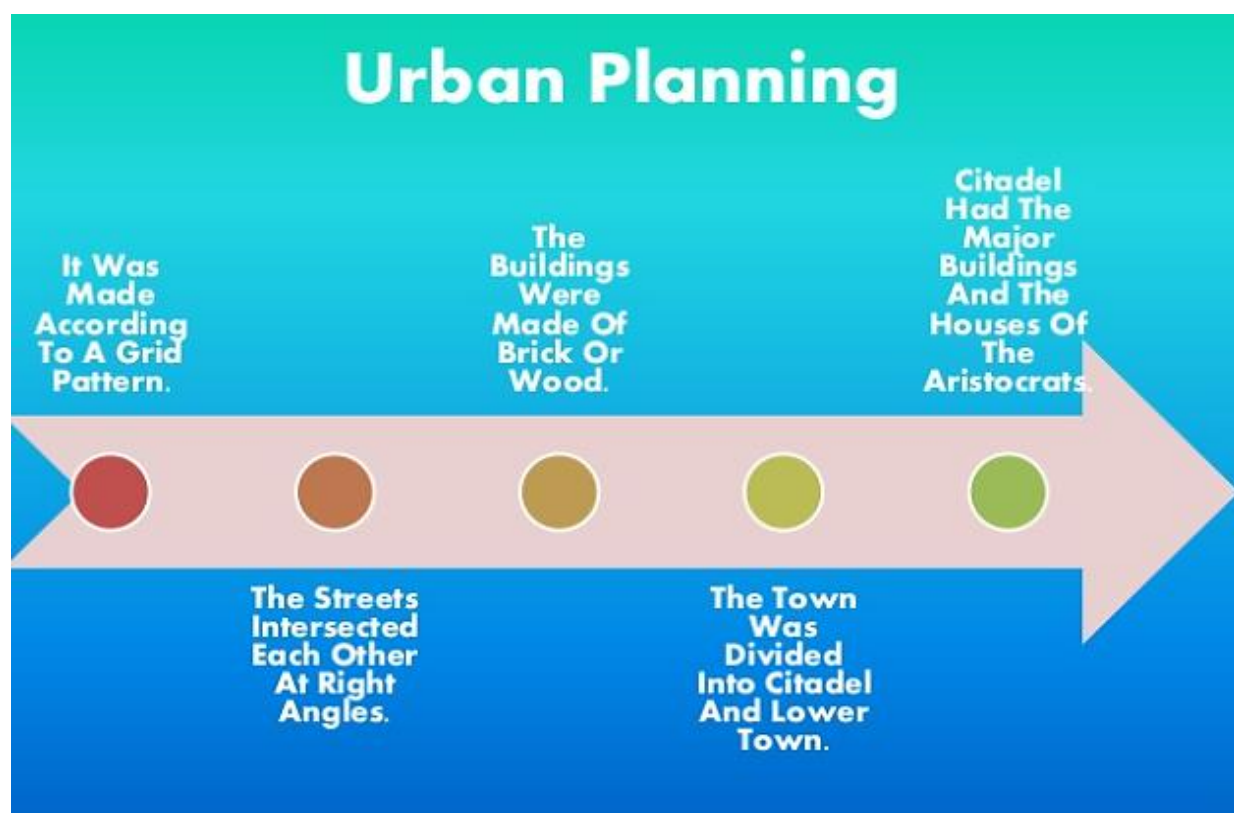


- **Vaastu means dwelling of Humans and Gods in the original Sanskrit literature.**
- **Many factors govern the life of a human being his fate, Karma and surroundings.**
- **BUT VAASTU CAN MAKE SWEET THINGS SWEETER AND BITTER LESS BITTER.**



- **Like many of our traditions, Vaastu too got neglected over the centuries for want of patronage; hence the present society could not very much appreciate and utilise this science in their construction of house, shops, office or industrial complexes.**
- **If construction is not according to the principles of “VAASTU” then thinking and action of the people dwelling or working in these places is not harmonious and evolutionary; leading to disorder & illness.**

3300 BC	Small villages are set up in the area around the Indus Valley River.
2500 BC	People started to build planned cities at Mohenjo-Daro, Harappa and Lothal.
2400 - 1800 BC	The Indus Valley civilisation starts to grow with busy cities and trade.
1800 BC	Most of the Indus Valley cities fall into decline and later abandoned. We do not know why.
1856 AD	Railway engineers discover bricks that were made by the Indus Valley civilisation.
1921 AD	Harappa ruins were discovered.
1922 AD	Mohenjo-Daro's ruins are discovered.



Occupation And Livelihood

Main Occupation = Agriculture

Leisure Activity = Art And Craft

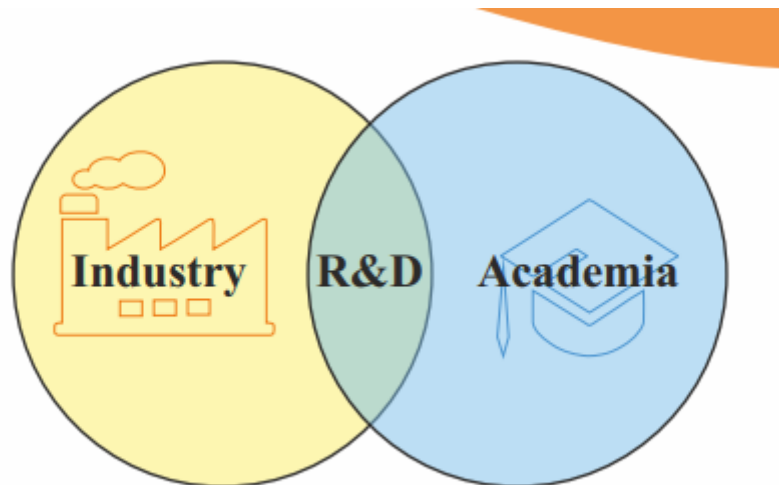
Metal Work = Copper And Bronze Used To Make Vessels, Etc

Beads = Used To Make Ornaments And Jewelry

Other Crafts = Pottery, Spinning, Carving And Weaving

- It is quite possible that the decline in civil society extended to other area such as agriculture planning and maintenance of irrigation systems making civilization more vulnerable to natural disasters such as droughts, floods, fires or earthquakes.
- This suggest that technological progress cannot be divorced from social conditions that may either encourage the progress of technology or conversely cause civilization that may be quite advanced to stagnate and even decline.
- For instance 3000 years after Harappa we find anecdotal evidence of impressive urban settlements constructed during the Mauryan period.
- Greek travellers have left behind admiring descriptions of Patliputra-The Mauryan capital. But social strife brought a precipitous end to the grand civilization.

As per the prediction of pundits of the economic sector, China and India will be the leading economies of the world as they have all the ingredients needed for becoming economically stable nations. Both nations have plenty of natural resources, huge land mass and coastal areas, large number of universities, scientists and advanced R&D laboratories/institutions and abundance of young workforce.



It is a well acknowledged fact that the development of a nation is closely associated with its Science & Technology programmes. India is aware of this situation and has continuously evolved its scientific policies for the same. In 1958, India published its first Scientific Policy Resolution (SPR) which laid stress on 'cultivation of science and scientific research' by establishing Higher Education Institutes and National Research Laboratories. Having achieved this goal, subsequent policies i.e. Technology Policy Statement (TPS, 1983) followed by Science and Technology Policy (STP, 2003) and Science, Technology and Innovation Policy (STIP, 2013) emphasized the need to attain technological competence and integrating programmes of socio-economic sector with national R&D sectors to address national problems.

India's Gross Expenditure on Research and Development (GERD) is less than 1.0% of GDP, whereas, it should have been at least 2% of GDP. This is feasible, provided private sector, primarily the industrial sector, raises its R&D investment so that it matches the government's contribution as is prevalent in developed economies. Recently, the government has offered many incentives for private sector to stimulate its R&D activities. The government has also started many schemes for encouraging entrepreneurship, start-ups and skill development amongst the young and bright minds.

7.

ASTRONOMY - MEANING

- 📖 The word Astronomy is derived from the greek word , “Astron” meaning , “ Star” and “Nomy”, is derived from the word , “ Nomos” means , “ Law or Culture” .
- 📖 Astronomy is a , “Law or Culture of Stars”.
- 📖 Astronomy is a natural science , that is the study of Celestial objects- planets, stars, moons , nabulae and galaxies. The physics, chemistry, mathematics of evolutions of such objects out side the earth's atmosphere



- Just as the study of Mathematics in India received an impetus from the study of Astronomy, so did the study of Physics. Aryabhatta (5th-6th century) made pioneering discoveries in the realm of planetary motion.
- This led to advances in the definition of space and time measuring units and better comprehension of concepts such as gravitation, motion and velocity.



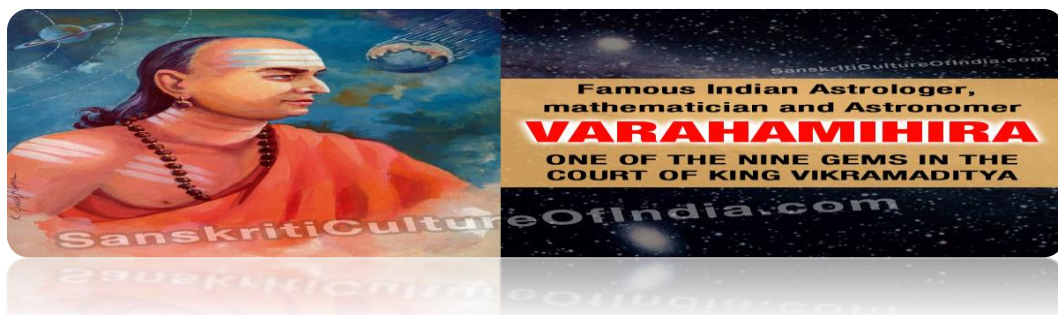
EARLY ASTRONOMERS



- Astronomer - Astronomers use the principles of physics and mathematics to learn about the fundamental nature of the universe, including the sun, moon, planets, stars, ...
- **Nicholas Copernicus – (1473 – 1543)** the first astronomer to teach that the sun (not the Earth) was the center of the solar system.
- **Galileo Galilei** – built the first telescope in 1609 and proved Copernicus correct.



- ✓ The study of astronomy also led to a great interest in quantifying very large and very small units of time and space.
- ✓ The solar day was considered to be made up of 1,944,000 ksana (units of time), according to the Nyaya-Vaisesikas. Each ksana thus corresponded to .044 seconds.
- ✓ The truti was defined as the smallest unit of time, i.e. 2.9623×10^{-4} . The Silpasastra records the smallest measure of length as the paramanu, i.e. $1/349525$ of an inch.
- ✓ Varahamihira (circa A.D. 6th c to one anguli, i.e. century) posited that 86 trasarenu were equal to one anguli i.e. three-fourths of an inch. He also suggest that 64 trasarenu were equal to the thickness of a hair.



2. SADILAJA/CĀLANA KRIYĀS / LOOSENING PRACTICES

The Cālana Kriyās/loosening practices/Yogic Sūkṣma Vyāyāmas help to increase microcirculation. These practices can be done while standing and sitting.

I. NECK BENDING (Grivā Śakti Vikāsaka)

Sthiti: Samasthiti (Alert Posture)

Technique

Stage i: (Forward and Backward Bending/Stretching)

- ◆ Stand with the feet 2-3 inches apart.
- ◆ Keep the hands straight beside the body.
- ◆ This is **Samasthiti**. This is also called **Tāḍāsana**.
- ◆ Keep your palms on the waist.
- ◆ While exhaling, move the head forward slowly and try to touch the chin to the chest.
- ◆ While inhaling, move the head up and bend back comfortably.



Stage - ii: (Right and Left bending/Stretching)

- ◆ While exhaling, bend the head slowly to the right; bring the ear as close as possible to the shoulder without raising the shoulder.
- ◆ While inhaling, bring the head to the normal position.
- ◆ Similarly, while exhaling bend the head to the left side.
- ◆ Inhale and bring the head up to normal position.
- ◆ This is one round: repeat 2 more rounds.



Stage - iii: (Right and Left Twisting)

- ◆ Keep the head upright.
- ◆ While exhaling, gently turn the head to the right so that the chin is in line with the shoulder.
- ◆ While inhaling, bring the head to the normal position.
- ◆ Similarly, while exhaling, turn the head to the left.
- ◆ Inhale and bring the head to the normal position.
- ◆ This is one round: repeat 2 more rounds.



Stage iv: Neck Rotation

- ◆ Exhale; bend the head forward to touch the chin to the chest.
- ◆ Inhale; slowly rotate the head clockwise in a circular motion, exhale while coming down
- ◆ Do a full rotation.
- ◆ Then rotate the head in an anti-clockwise direction.
- ◆ Inhale; go back and exhale, come down.
- ◆ This is one round: repeat 2 more rounds.



Note:

- ◆ Move the head as far as possible. Do not over strain.
- ◆ Keep the shoulders relaxed and steady.
- ◆ Feel the stretch around the neck and loosening up of the joints and muscles of the neck.

- ◆ Can also be practiced sitting on a chair.
- ◆ People with neck pain can do the practice gently especially when taking the head back to the extent it is comfortable.
- ◆ Elderly people and persons with chronic cervical spondylitis may avoid these practices.

II. SHOULDER'S MOVEMENT

Sthiti: Samasthiti (Alert Posture)

Stage i: (Shoulder's Stretch)

Technique:

- ◆ Keep the feet together, the body straight and the arms by the sides.
- ◆ While inhaling; raise your both arms sideways above your head with the palm outward.
- ◆ Exhale and bring it down in the same manner.
- ◆ Palms must be opened, with fingers together.



◆ Palms must be opened, with fingers together.

Stage ii: Skandha Cakra (shoulder Rotation)

- ◆ Stand erect.
- ◆ Place the fingers of left hand on the left shoulder and the fingers of right hand on the right shoulder.
- ◆ Full rotation of the both elbows in a circular manner.
- ◆ Inhale and raise your elbows & bring them back when you exhale.
- ◆ Try to touch the elbows in front of the chest on the forward movement, stretch the elbows back in the backward movement and touch the side of the trunk while coming down.
- ◆ Repeat this 2 times rotating from front to back.
- ◆ Do the same in reverse manner. Inhale while raising the elbows & exhale while bringing them down.



Benefits:

- ◆ Practice of this Yogic kriyā makes the bones, muscles and nerves of the neck and shoulder healthy.
- ◆ These practices are helpful in cervical spondylosis and frozen shoulder.

III. TRUNK MOVEMENT (Kaṭīśakti Vikāśaka)

Sthiti: *Samasthiti* (Alert Posture)

Technique

- ◆ Keep the legs about 2-3 feet apart.
- ◆ Raise both the arms up to shoulder level with palms facing each other and keep them parallel.
- ◆ While exhaling, twist the body towards the left side so that the right palm touches the left shoulder; come back with inhalation.
- ◆ While exhaling, twist the body towards the right side so that the left palm touches the right shoulder; come back with inhalation.
- ◆ This is one round: repeat it two more times.
- ◆ Relax in *Samasthiti*.



Note:

- ◆ Do it slowly with coordination of breathing.
- ◆ Cardiac patients shall do with care.
- ◆ Avoid this practice in case of severe back pain, vertebral and intervertebral disc disorders and during menstruation.

IV. KNEE MOVEMENT

Sthiti: *Samasthiti* (Alert Posture)

Technique

- ◆ Inhale; lift your arms up to the shoulder level, palms facing downwards.
- ◆ Exhale; bend the knees and bring down the body to the semi squatting position.
- ◆ In the final position, both the arms and thighs should be parallel to the ground.
- ◆ Inhale; and straighten the body.
- ◆ Exhale while bringing down the hands.
- ◆ Repeat it two more times.



Note:

- ◆ Helps to strengthen knees and hip joints.
- ◆ Avoid this asana in case of acute conditions of arthritis.

9.

B. SITTING POSTURES

BHADRĀSANA (The Firm/Auspicious Posture)

Bhadra means firm or auspicious.

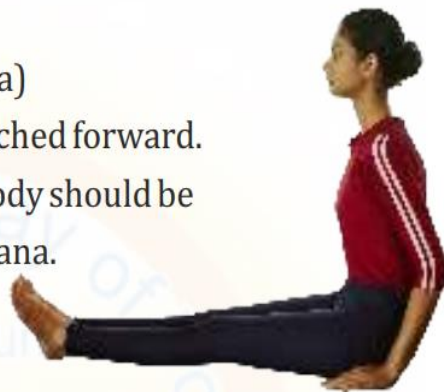
Sthiti: Long sitting posture (*Viśrāmāsana*)

- ◆ Sit erect with both the legs stretched forward.
- ◆ Support the back with hands. Body should be relaxed totally. This is *Viśrāmāsana*.

Technique

- ◆ Sit straight with legs stretched out in the front.
- ◆ Keep the hands beside the hips and palms resting on the floor.

This is ***Daṇḍāsana***.



- ◆ Now put the soles of your feet together.
- ◆ Exhale and clasp your hands together over your toes. Inhale, pull your heels as close as possible up to perineum region. If your thighs are not touching or are not close to the floor, place a soft cushion underneath the knees for support.
- ◆ This is the final position.
- ◆ Stay in this position for sometime with normal breathing.



Benefits

- ◆ Helps to keep the body firm and stabilizes the mind.
- ◆ Helps during pregnancy and relieves abdominal pain often experienced during menstruation.

Caution

- ◆ Avoid this practice in case of severe arthritis and sciatica.

VAJRĀSANA (Thunderbolt Posture)

This is considered as one of the meditative posture. While practicing it for meditative purposes, one should close his/her eyes at the final stage.

Sthiti: Daṇḍāsana.

Technique

- ◆ Sit with extended legs together, hands by the side of the body, palm resting on the ground, fingers pointing forward.
- ◆ Fold the right leg at the knee and place the foot under the right buttock.
- ◆ Similarly folding the left leg, place left foot under the left buttock.
- ◆ Place both the heels so that the big toes touch each other.
- ◆ Position of the buttocks is in the space between the heels.



- ◆ Keep both hands on respective knees.
- ◆ Keep the spine erect, gaze in front or close the eyes.
- ◆ While returning to the starting position, bend a little towards right side, take out your left leg and extend it.
- ◆ Similarly extend your right leg and return to the starting position.
- ◆ Relax in Viśrāmāsana.

Benefits

- ◆ This *āsana* is good for digestion, strengthens thigh muscles and calf muscles.

Caution

- ◆ Persons suffering from piles should not practise this *āsana*.
- ◆ Those who are suffering from knee pain and ankle injury should avoid this practice.

C. PRONE POSTURES

MAKARĀSANA (The Crocodile Posture)

In Sanskrit, *Makara* means crocodile. In this *āsana*, the body resembles the crocodile, hence the name.

Sthiti: Prone relaxation posture

Technique

- ◆ Lie down on your stomach with feet wide apart, toes pointing outward.
- ◆ Bend both the arms and place the right palm on the left palm.
- ◆ Place the head either left or right on your hands.



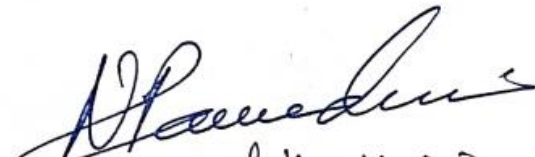
- ◆ Keep the eyes closed and relax the whole body. This is Makarāsana.
- ◆ This āsana is practiced for relaxation in all prone postures.

Benefits

- ◆ Promotes relaxation of the whole body.
- ◆ Helps in recovery of back problems.
- ◆ Indicated to counter stress and anxiety.

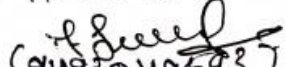
Caution

- ◆ Avoid this practice in case of pregnancy and frozen shoulders.



Signature of the H.O.D

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