

BHILAI INSTITUTE OF TECHNOLOGY, DURG

DEPARTMENT OF CIVIL ENGINEERING



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VISION & MISSION

VISION

To create globally competent Civil Engineering professionals by delivering value based quality education to serve the society.

MISSION

To put in honest, sincere and focused efforts to create peace, prosperity and growth for all stakeholders and produce globally competent Civil Engineering professionals who will be able to exhibit teamwork, commitment and the zeal to excel in all areas of civil engineering.

FROM EDITOR'S DESK

The process of acquiring knowledge is an endless journey. The knowledge available at present is as acquired through the experiences right since, human civilization. In this episode of ziviltech some pieces of such experiences / attainments are attempted to be brought up as a small effort toward enrichment of the concerned.

"ZIVILTECH TEAM WISHES YOU A HAPPY NEW YEAR"

GOOD NEWS: (4538) VISHYANAND

Viswanathan Anand has a minor planet named after him. Yes, you heard that right. A minor planet discovered in 1988 has been officially named "(4538) Vishyanand".

Minor planet (4538), between the orbits of the planets Mars and Jupiter, was discovered on October 10, 1988 by Kenzo Suzuki in Toyota, Aichi Prefecture, Japan, but had remained unnamed till recently.

he discoverer retains the privilege of suggesting a name for 10 years and a committee chosen from the working group of the International Astronomical Union has the final authority to

finally assign a name to a numbered minor planet. Michael Rudenko, committee member of the Minor Planet Center, who was invited to do the honours, decided to name it after the former world chess champion, Chess News reported on April 1.

The idea of naming a minor planet for Anand was entirely my own," Rudenko told New Indian Express. "After careful consideration I selected him because in addition to being a great chess player he is also a gentlemen and astronomy enthusiast," Rudenko said.



Rudenko proposed the name "Vishyanand", following the rules that require names to be 16 characters or fewer, and preferably without spaces, along with a brief citation explaining the reason for the name. To his delight, the committee gave its approval, and the name has been formally accepted.

LET US KNOW !! PANAMA CANAL

The Panama Canal is one of the Seven Wonders of the Modern World, it connects the Pacific and Atlantic Oceans. It is a 48 mile canal that is important for international maritime trade. The canal allowed ships to travel between the two oceans more safely and in half the time. It is under control of the Panamanian government since 1999. Construction of the canal began by France in 1881, but due to engineering problems and too many deaths of workmen due to various diseases it could not mature. Construction was restarted by US and they took 10 years to complete the canal. The original canal had a total of six steps (three up, three down) for a ship's passage. The total length of the lock structures, including the approach walls, is over 3 km. The locks were one of the greatest engineering

works ever to be undertaken when they opened in 1914. The size of the original locks limits the maximum size of ships that can transit the canal; this size is known as Panamax.

The Panama Canal locks are a lock system that lifts a ship up 26 m to the main elevation of the Panama Canal and down again.

Construction on the Panama Canal expansion project, which included a third set of locks, began in September 2007, finished by May 2016 and began commercial operation on 26 June 2016.

A failure of the lock gates—for example, caused by a runaway ship hitting a gate—could unleash a flood on the lands downstream of the locks, as the lake above the locks drains through the lock system. Extra precaution against this is provided by doubling the gates at



both ends of the upper chamber in each flight of locks; hence, there are always at least two gates in each flight of locks that would have to fail to allow the higher level of water to pass downstream. The additional gates are 70 ft (21 m) away from the operating gates.

? Q & A

1. Dado is usually provided in

- A. bath rooms
- B. dinning halls

2. A piezometer opening in pipes measures

- A. velocity head
- B. static pressure

3. Surge tanks are used

A. to guard against water hammer.

B. as overflow valves

4. The coagulant widely used for sewage treatment, is

- A. alum
- B. ferric chloride

5. Disposal to sewage in large cities, is done in

- A. irrigation
- B. dilution

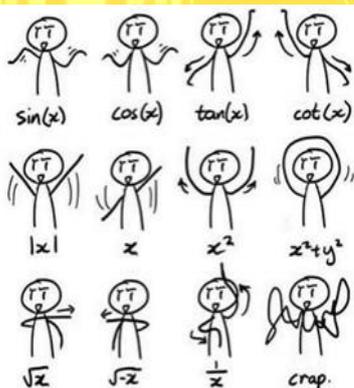
I a 2 b 3 a 4 b 5 b

Do You Know ?



The flag at top of Jagannath temple, Puri has been observed to flap in the opposite direction of the breeze.

FUNTOON



DANCE LESSON FOR ENGINEERS

LEARN FROM FAILURE: DAM COLLAPSE

Located in Los Angeles, California, St. Francis Dam was a curved concrete gravity dam constructed between 1924 and 1926 in order to provide a storage reservoir for the Los Angeles Aqueduct system. The dam's upstream face exhibited a nearly vertical profile, the downstream side was equipped with a stair step design that resulted in base and crest thicknesses of 175 and 16 feet, respectively. The main structure reached a height of 205 feet and spanned 700 feet along its curvilinear crest. The design and construction of the St. Francis Dam was executed solely by the Los Angeles Bureau of Waterworks & Supply under the supervision of the organization's chief engineer William Mulholland. The failure of the dam in 1928 resulted in the massive destruction was attributed to a series of human errors

and poor engineering judgment. William Mulholland was a "self-taught" engineer and the chief engineer of the project, when he orchestrated the design and construction of the Los Angeles Owens River Aqueduct, the longest water conveyance system at the time. Multiple instances of poor judgment significantly contributed to the cause of the failure of St. Francis Dam. Plans for the dam were based upon those previously prepared by Mulholland for the Mulholland Dam with little regard for site-specific investigations. When these plans were finalized and after construction began, the height of the dam was raised by ten feet on two separate occasions in order to provide additional reservoir storage needed to sustain the growing community surrounding the dam. Although these modifications



increased the dam's height by twenty feet, no changes were made to its base width. As a result, the intended safety margin for structural stability decreased significantly.

SOFTWARE YOU MUST KNOW:

- ◆ **AutoCAD Civil 3D:** AutoCAD Civil 3D civil engineering design software is a civil design and documentation solution that supports Building Information Modeling (BIM) workflows.
- ◆ **MicroStation :** MicroStation is a modeling environment explicitly for the architecture, engineering, construction, and operation of all infrastructure types including utility systems, roads and rail, bridges, buildings, communications networks, water and wastewater networks, process plants, mining, and more. MicroStation can be used either as a software application or as a technology platform
- ◆ **STAAD Pro:** STAAD Pro is a structural design and analysis tool which was developed by Research Engineers.

AROUND THE WORLD :

- ◆ *India* national anthem no longer compulsory in cinemas
- ◆ *India* largest market for freelancers'
- ◆ *India* unveils Pratyush, its fastest supercomputer yet.
- ◆ 2017 was the worst year ever for internet freedom in *India*
- ◆ Jet Airways fires pilots who fought mid-air on London-Delhi flight

BRIDGE UNDER WATER !

The Oresund Bridge project involved building an underwater tunnel, an artificial island, an artificial peninsula, and a bridge. Construction began in 1995 and completed on 14 August 1999. During that time, setbacks occurred after 16 unexploded World War II bombs were found on the seafloor. At 7,845m (25,738ft) in length, the bridge covers half the distance between Sweden and the Danish island of Amager. The artificial island Peberholm was created to enable turning a part of the bridge into a 4km-long underwater tunnel so ships could still pass. The bridge has a mass of 82,000 tonnes and supports two railway tracks beneath four road lanes along its

entire length. Starting from Denmark:- The tunnel connects to the Denmark side, and construction began there in late 1993. Workers created an artificial peninsula named Kastrup to house the entrance into the tunnel, and over the next five years a tunnel trench was dredged in the seafloor. Then twenty prefabricated concrete elements were lowered underwater and connected. The result is a type of tunnel known as a tube tunnel, because it's essentially a long concrete tube. The finished tunnel is 2.5 miles long. It comes back to the surface and transfers traffic onto the bridge thanks to an artificial island named Peberholm, created out of dirt and materials



dredged for other parts of the project. In the aerial image, we can see the island as a graceful white crescent in the water. The Oresund Bridge is a cable-stayed bridge. In this kind of bridge, a series of strong steel cables attach the bridge deck to high towers called pylons that support its weight

"WE BECOME WHAT WE THINK ABOUT." -EARL NIGHTINGALE