

MECHBUZZ!!!

DEPARTMENT OF MECHANICAL ENGINEERING,
VASAVI COLLEGE OF ENGINEERING, HYD.
DECEMBER 2016 ISSUE 4

PROSTHETICS-ARTIFICIAL LIMBS

Have you ever met anyone who has an artificial limb? Chances are that you have-even without knowing it. Modern prostheses work so efficiently and look so convincing that you wouldn't even know someone was wearing one. People with prosthetic legs can often climb stairs, walk, swim and run as well as though they were using natural limbs. You might think that they are boring and mundane, but prosthetic limbs are among the world's truly great inventions by improving people's lives.

What is prosthesis?

A prosthesis (also called a prosthetic limb) is an artificially made substitute for a limb lost through a congenital defect, accident, illness or wartime injury.

How does prosthesis work?

A prosthesis consists of a number of different parts. There's the prosthetic limb itself, the socket, the attachment mechanism and the control system. Let us look at it briefly.

Construction of the prosthetic Limb:

The construction depends largely on the job it will have to do. For example, the prosthetic legs are substitutes for a major structural part of someone's body and will have to bear their entire weight. Typically, the prosthetic limb is made of a strong and durable but light in weight material such as carbon fibre, covered with foam padding or flesh coloured plastic for comfort. The weight of the prosthetic limb is a very important factor. We don't notice how much our limbs weigh because they feel so natural and seem to move themselves. But if you consider that your two legs amount to 30 to 40 percent of your total body weight, and your two arms about 10 percent, you can see why prosthetic limbs need to be lighter: you'd be quickly tired moving prosthetic limbs that weighed as much as your natural ones.

CONTENTS:

Prosthetics-Artificial Limbs	1&2
Interview Etiquette	3,4
Tech Terms & Bizarre Facts	4
B'Days this month	5
Riddles	6

ORACLE:

"When you want to know how things really work, study them when they are coming apart."

—William Gibson,
Zero History

The Socket:

The comfort and the effectiveness of a prosthesis is largely dependant on how well it fits into the remaining part of the patient's own limb which is called the residual limb (or the stump). The connecting part of the prosthesis is called the socket and it is carefully moulded around a plaster cast taken from the residual limb. The fit of a socket has to be precise or the new limb may damage the residual one, causing discomfort or tissue damage and perhaps even making it impossible to wear the prosthetics for a time. More precise fittings can be made by scanning a patient's limbs with lasers and cutting edge techniques such as 3D printing are also now being made.

The Attachment Mechanism:

A well fitted prosthetics is usually secured to a residual limb by what's called a suspension system. A snug, secure fitting is vital for comfort and ensures the limb can be properly controlled. Often the socket is itself a part of the attachment. For example, a prosthetic leg socket may consist of a large hollow plastic casing into which the stump is inserted.

The Control System:

Natural limbs are pulled back ad forth by muscles stimulated by our brains; in much the same way, the simplest functional prostheses are operated by systems of cables that run through them, doing the same job of the muscles. Simple artificial legs work largely through gravity: the wearer learns to walk in them, through practice, by alternately swinging them into position and then balancing on them while they move their unimpaired leg in its turn.

The most sophisticated and expensive prostheses are myoelectric. They use electrodes to sense the muscular impulses in the stump. Electronic control systems detect those signals and amplify them to power electric motors that operate the prosthetic limb as though it were real.

Learning to live with a new limb:

Technology is only a part of the story. Getting used to a brand new part of your body is a physical and psychological challenge. It hugely depends on the person who works with you at every stage of the process, from choosing the best prosthesis for your needs; through the process of measuring, manufacture and fitting; to helping you learn how to operate your new limb; and tackle new challenges such as taking up a sport or activity.

(Source: www.explainthatstuff.com)



THE INTERVIEW ETIQUETTE

There are some aspects that you, as a job seeker, need to keep in mind and prepare for, before sitting for Interview.

1. **Dress Code:** As Interview is a formal occasion, you are expected to be dressed for the occasion. Men should wear a freshly-ironed formal long-sleeved shirt and trousers, polished formal shoes (black or brown), belt, and a tie (knotted properly). Do not forget to sport a 'clean look' on the day of Interview. Use a mild deodorant. Women can wear salwar-kameez/saree/skirt & shirt. If you have a long hair, wear a neat plait or tend to it in a manner that it does not look unkempt. That bit about formal shoes applies to you too. Of course, sandals meant for formal occasions are fine.
2. **Entry into the Interview Room:** You may be asked by one of your panel members or one of their assistants to enter the room. At the door, ask for permission to enter. *"May I come in, Sir/Madam?"* Relax. Don't be in a hurry to rush to the table. Greet the panel using appropriate salutations with a smile. On being asked to sit down, thank them.
3. **Sitting Posture:** Sit comfortably in a chair. Your arms may rest on the arm-rest of the chair or in your lap. The folder that contains your certificates and other documents should be kept on your lap, and not on the table. Remember, the table belongs to the panel. Avoid postures that reflect a casual attitude. For instance, avoid rocking the chair or placing one leg horizontally over the other.
4. **Body Language:** Be yourself. While you might feel that you need to 'project' yourself to the panel, the 'real you' will end up showing itself by the way of your body language. Interviewers are experts who can easily spot the inconsistency between what you are saying and your body language conveys. Use gesticulations. Lean a little forward to show that you are interested in what they are saying/asking. While doing so, do not lean or rest your arms or elbows on the table.
5. **Language to be used:** Use formal language and speak in English. Some of us have the habit of mixing English with the vernacular. Avoid doing this in the Interview. Do not use slang. Use short sentences that convey the meaning of what you wish to say. Avoid using complicated sentences and long drawn-out explanations.

6. Conduct inside the Interview room: Listen carefully and attentively to the questions asked. If you are unable to comprehend the meaning or hear the question, request the panel member to clarify/repeat the question. Always speak in a slow, measured tone in a manner that everyone in the panel is clearly able to hear and understand what you are trying to say. There is no need to 'blurt out the answer' for the question(s) asked. Take a few moments to collect your thoughts and then answer. Maintain eye contact with the panel at all times and convey a pleasant disposition to the interviewers, irrespective of the mental state you are in. Remember there will be a certain amount of nervousness when you go for an Interview. But you have to take care that such nervousness does not get the better of you.

(Source: MBA Education & Careers)

TECH TERMS:

- **Turbine:**

A turbine is defined as the hydromachine which converts the hydraulic energy and then this mechanical energy is converted into electrical energy to generator.

- **Composite Material:**

A composite material is a material made from one or two or more constituent materials with significantly different physical and chemical properties that, when combined produce a material with characteristics different from the individual components.

- **Forging:**

It is a manufacturing process involving the shaping of metal using localized compressive forces. The blows are delivered with a hammer or a die.

BIZARRE FACTS!!

- Mary Anderson invented the windshield wiper in 1903, years before Henry Ford industrialised automobile production.
- The Chesapeake Bay Bridge Tunnel is considered to be "One of the Seven Engineering Wonders of the Modern World". It is made of two high bridges, two, one-mile tunnels, four man-made islands and 12 miles of trestle.
- The Experimental Breeder Reactor I located at the Idaho National Laboratory in Idaho Falls, Idaho was the first facility to produce electricity generated by nuclear energy on December 20, 1951.
- Big Brutus is the second largest shovel in the world. It was built in 1963. It is 16 feet tall and has a boom 150 feet long. At 11 million pounds, it has the capacity to lift 150 tons of coal.

B'DAYS THIS MONTH:

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	31					1
2	3 Pradeep MechA(3/4) Gandharv MechB(4/4)	4 Srikanth MechA(3/4)	5 Abhay MechB(2/4)	6	7	8 Dileep MechB(4/4)
9 Mr. P. Venkateswara Rao	10 Vanitha MechB(3/4)	11 Keerthana MechB(3/4) Shivaji MechB(2/4)	12 G. Arunanjali MechB(3/4)	13 Md.Sohail MechA(2/4)	14 Mr. K.I.Spurgeon Shreya MechA(3/4)	15
16 Venkatesh MechA(2/4) Anudeep MechA(2/4)	17 Soumya MechA(3/4)	18 Sai Teja MechA(2/4) Arjuna MechA(3/4)	19 Mr.V.B.S.Rajendra Prasad Shaik Farooq MechB(4/4)	20 Bhanu Prakash MechB(3/4) Ch. Pranay Kumar MechB(3/4)	21 Md. Rahman MechA(2/4) Rohit MechB(4/4)	22
23	24 Thanai MechB(4/4)	25 Vatsav MechB(4/4) P.V.S.Vihari MechB(4/4)	26	27 Chandrakanth MechB(3/4) Navyansh MechB(2/4)	28	29

RIDDLES:

- 1) 1,1,4,8,9,27 what will be the next two numbers?
 - A) 23, 25
 - B) 16, 24
 - C) 16, 64
- 2) A number when divided by 2,3,4,5 and 6 leaves remainders 1,2,3,4 and 5, it is possible to divide by 7, then what is the least possible number?
 - A) 117
 - B) 119
 - C) 113
 - D) 121
- 3) _____ is to water as eat is to _____
 - A) continue-drive
 - B) foot-enemy
 - C) drink-food
 - D) girl-industry

SOLUTIONS TO RIDDLES OF PREVI- OUS ISSUE:

- 1) 4
- 2) 2
- 3) 2
- 4) 2
- 5) 2
- 6) 3

THE EDITORIAL COMMITTEE :



Dr. T. Rama mohan Rao, HOD

Dr. A . Srinivas, Prof.

—Chandrika J 3/4 Mech B

—Neha Shashi 3/4 Mech B

—Vaishnavi C 3/4 Mech B

—Sunil Kumar P 3/4 Mech B

Forward your

articles for publication to us through mail:

mechbuzz.vce@yahoo.com.

Also like us on Facebook @

www.facebook.com/mechbuzz.vce.

Send your solutions to riddles to us through

email to mechbuzz.vce@gmail.com