

Important Facts to Know: General studies A

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- 1.The study of bones is called osteology
 - Total no of bones 206
 - Smallest bone-Stapes(ear bone)
 - Longest bone-Femur(Thigh bone)
 - Strongest bone-Tibia(leg bone)
 - Total no of muscles-639
 - Largest gland-liver
 - Longest gland-thyroid
 - Longest nerve-Sciatic
 - Hardest bone-Tooth enamel
 - Total amount of blood in the body is (1/15 of body weight)
 - Normal body Temperature-98.6F(37C)
- 2.Govt.of India banned the student Islamic movement of India (SIMI)because it had linked with Osama Bin Laden's al-Qaeda Group
- 3.The Salary of member of parliament and higher perks is enhanced from Rs.4000 to 12,000 per month and constituency allowance from Rs.8000 to 10,000 per month and daily allowance of Rs.400 to Rs. 500 for a period of five year
- 4.Competition bill to replace MRTPC (Monopolies and Restrictive Trade Practice Act.)
- 5.Supreme court ruled on August 2,2001 that a public servant convicted in corruption case should not hold office till he was cleared of the charges by a superior court
- 6.Number of amendments in constitution is 8 till now
- 7.The terrorist outfit that brought the WTC and destroyed part of Pentagon in Washington is Al-Qaeda.the network association with Osama Bin Laden
8. ISI-Inter Service Intelligence
- 9.Durent line boundary between India and Afghanistan
- 11.Mc Mohan Line:-boundary between India and china
- 12.Redcliff Line: - boundary between India and Pakistan
- 13.Palk Strait: - boundary between India and Sri Lanka
- 14.Prithvi:-Surface to surface missile. It has a range 250km
- 15.Agni:- Is Surface to surface missile. It has a range 1500-2000km
- 16.Akash:- Is Surface to surface missile. it has a range of 25km
- 17 Nag: It is an anti tank missile having range of 4km
- 18.Bank rate is the rate at which the reserve Bank of India gives credit to commercial Banks
- 19.Amicus Curiae-Lawyer appointment by the court to represent a poor person. it means friend of court
- 20.C.R.R- Cash Reserve Ratio
- 21.Medico Legal case-Accidental Case
- 22.The most important influence of the moon on the earth is the effect on ocean tides
- 23.Ranthambore:- Ranthambore National park in Rajasthan(410 sq.km)was ones the private tiger reserve of the Maharaja of Jaipur
- 24.Ghana Bird Sanctuary-Bharatpur Rajasthan

25. Standard Deduction in income tax-30,000/-
26. Maximum income not liable to tax-50,000/-
27. American™s Robinson Walton (Bill Gates) is the richest person in the world
28. Bio terrorism:- It refers to the use of disease causing micro organism as terrorist weapons to cause devastating impact on the people. For example Anthrax.
29. Punjab University founded in 1947 at Lahore. After partition it was re-established in India on 1st of October 1947. The University moved to Chandigarh in 1956, vice chancellor of Punjab University is "K.N. Pathak
30. Kapil Dev has been chosen the wisdest Indian cricketer of the century.
31. Akshardham Temple is in Gandhinagar (Gujarat) 35 people were killed by terrorist
32. Metro rail Delhi 24 Dec, 2002 (Shahdara to Jangpura is 8.3km)
33. CAG- V.N. Kaul
34. Chairman of SBI- A.K. Purwar
35. Guru Nanak born in Talwandi now called Nankana Sahib in 1469. He died in 1539. Guru was founder of Sikhism
36. Guru Angad Dev- introduced longer system
37. Guru Amar Das- social reformer and discarded sati pratha
38. Guru Ram Das- founded city of Amritsar
40. Guru Arjun Dev- Built Golden Temple and compiled Adi Granth or Guru Granth Sahib. Guru Arjun Dev compiled Granth Sahib in 1604 with the help of Bhai Gurdas Bhalla ji. Guru Arjun Dev was executed by Jahangir on the advice of Chandu Singh. Guru Arjun Dev got the foundation of Harmandir Sahib laid down by a Muslim Faqir named Mir.
41. Guru Hargobind Singh "started the system of Akal takht and miri, piri.
42. Guru Har Rai
43. Guru Harkishan
44. Guru Teg Bahadur- Guru Teg Bahadur executed by Aurangzeb
45. Guru Gobind Singh "Founder of Khalsa 13th April, 1699, Baisakhi, and Khalsa means military brotherhood Zafarnama: - This is Letter written by Guru Gobind Singh to Mughal Emperor Aurangzeb. This letter was written because Aurangzeb was committed many atrocities on people. Guru Gobind Singh asked Aurangzeb to give up the policy at Anandpur Sahib on the 1st Baisakh 13th April, 1699 A.D
46. Dasam Granth was compiled by a devoted Sikh man Singh after passing away Of Guru Gobind Singh .
47. Guru Ki kashi- Takhat Damdama Sahib. It is famous Gurudwara, Which is situated at Talwandi Sabo. It is called Guru Ki Kashi
48. Guru Ki Wadali "it is Birth place of Guru Hargobind Ji. It is famous Gurudwara of Punjab
49. Banda Bahadur- Was born on 27th October, 1670. His real name was Lachaman Das. Once, during hunting an arrow of Banda Bahadur stuck a pregnant she deer; Banda Bahadur was greatly pained to see the tragic death of the deer and its two kids. He renounced the world and became a Bairagi. Banda Bahadur adopted the name Madho Das after becoming a Bairagi. Madho Das (Banda Bahadur) met Guru Sahib. He said "I am your Banda (Servant) ". Thus Madho Das became Banda. Guru Gobind Sahib called him Banda the brave. Thus acquired the name Banda Bahadur
50. Sharomani Gurdawara Prabandhak Committee was established on 15th Nov. 1990, at Akal Takhat Amritsar.

51. Akalis launched a non-movement in 1921 with the aim of "Liberating Sikh Guru Gurudwara from Mahants.

Important Facts to Know: General Studies

Literature: -

52. Creator of Asa-di-war, Japuji sahib-Guru Nanak Dev ji.
 53. Creator of Bachittar Natak- Guru Gobind Singh
 54. Creator of Jab Sahib- Guru Gobind Singh
 55. Creator of Anand Sahib- Guru Amar Das ji
 56. Creator of Sukhmani Sahib "Guru Arjan Dev ji
 57. Compiler of Guru Granth Sahib "Guru Arjan Dev ji.
 58. Writer of Adhi Granth at the time of its compilation of "Bahi Gurdas Bhalla ji
 59. Creator of Bani written in Dasam Granth-Guru Gobind Singh ji
 60. Most famous writer of Qisa Puran Bhagat "Fazal Shah.
- Maharaja Ranjit Singh and his Administration:-
61. Date of Birth of Maharaja Ranjit Singh-Nov.2, 1780.
 62. Name of the parents of Maharaja Ranjit Singh- Father name:-Maha Singh ,Mother name :-Raj Kaur
 63. Time of treaty of Amritsar between Maharaja Ranjit Singh and British "25th April,1809
 64. Name of the Foreign minister of Maharaja Ranjit Singh-Faqir Azizudeen
 65. Head of Finance minister at the time of Maharaja Ranjit Singh- Deewan Kaura Mal
 66. Most famous prime minister of Maharaja Ranjit Singh- Dhian Singh Dogra
 67. Meaning of Kankut system started by Maharaja Ranjit Singh- Tax on standing crop in the field
 68. "Nazim Adalat" at the time of Maharaja Ranjit Singh state level- Court
 69. Capital city of Maharaja Ranjit Singh- Lahore
 70. First war between Sikh and British " 1845 A.D.
 71. Second Anglo Sikh War-1848-1849 A.D.
 72. Ranjit Singh (Thein) Dam has been constructed on the river- Ravi
 73. Which Dam is built on Beas near Talwara- Pong Dam.
 74. Dam built on the river Satluj- Bhakra Dam
 75. The Dusi dam has been constructed on the river Beas
 76. The old name of the Amritsar "Ramdas nagar
 77. Which Guru got constructor Akal Takhat "Guru Hargobind Sahib
 78. The real Granth Sahib has been placed at "Kartarpur
 79. Guru Nanak Dev Ji was enlightenment at- Sultan Pur
 80. Which Guru built Buraj Baba Atal- Guru Hargobind Sahib
 81. The old name Punjab- Sapat Sindhu
 82. The Gurudwara situated at present where foundation of Khalsa Panth was laid "Gurudwara Kesgarh Sahib.
 83. The other name of Harmandir Sahib is-Darbar Sahib.
 84. The Guru; who founded Anandpur Sahib was "Guru Teg Bahadur
 85. Bhagat Singh was hanged on-23rd March, 1931
 86. Number of district in Punjab-17, Lok Sabha seats-13

87. Highest Gallantry Award-Param Vir Chakra

88.NOBLE PRIZES;-The Honors of Wining the Noble Prizes go to the Following 7 Indians

(i)Rabinder Nath Tagore win the noble prizes from literature in 1913.

(ii)C.V. Raman win the noble prizes from physics in 1930.

(iii)Hargobind Khurana win the noble prizes from medicine in 1968.

(iv)Mother Teresa win the noble price from peace in 1979.

(vi) S. Chandrasekhar win the noble prize from physics in 1986.

(vii) Prof. Amartya Sen win the noble prizes from Economics in 1998.

(viii) V.S.Naipal win the noble prizes from Literature in 2001.

90.Highest Gallantry Award- ParamVir Chakra

91.Highest Civilian Award- Bharat Ratana

92.First Olympic Game held at Athens in 1896

93.First Deputy Prime Minister of India-Sardar Patel

94.2nd deputy Prime Minister of India-Morarzi Desai

95. 3rd Deputy Prime Minister of India –Choudhari Charan Singh

96. 5th Deputy Prime Minister of India –Y.V.Chauan.

97.6th Deputy Prime Minister of India –Dev Lal

98. 7th Deputy Prime Minister of India- Lal Krishna Advani

99. AIDS: Acquired Immune Deficiency Syndrome

100.HIV: Human Immunodeficiency Virus

101.AIDS:Is caused by Virus Aids is due to Human Immunodeficiency Virus

102.Classical Dance of India:-

-Manipur of Manipur

-Oddisi of Orissa

-Katha-Kali of Kerala

-Kuchi-Pudi of Andhra Pradesh

-Bharat Natyam of Tamil Nadu

-Kathak of Utter Pradesh

-Bihu of Assam

103.Legal Service Clinic:-A Legal Service Clinic open 24 hours on all days, has been established in Ahemdabad to provide free service of retired high court judge and reputed lawyer.

105.The State of Haryana:-Came into begin on , Nov.1,1966 as result of the re-organizations of the old Punjab state into two separate seats. It consist of the Hind speaking area of Punjab,secong language status has been given to Punjab(1996)

106.Book and Author:-

-Life Diving

-Ain-I-Akbari -Aourbinbo Ghosh

-Panchtantra -Abdul Fazal

-Mahabharta -Vishnu Sharma

-India wins Freedom -Veda Vyas

-Discovery of India -Maulana Abdul Kalam

-My Experiment with Truth -Gandhi

-Madhushala -Harivansh Rai Bachan

-Prisonerâ€™s Scorapbook -L.K.Advani

107.Sports:-

- Agha Khan Cup -Hockey
- Durant Cup -Football(India)
- Duleep/renjit Trophyre -Cricket
- Santosh Trophy -National Football
- Thomas Cup -World Bedminton(Men)
- Davis Cup -Lawn Tennis

108.Buddhism:Buddhism was founded by Gautam

Buddha. His Original name was Gautam Siddhartha, A Kashatriya, Born in 563 B.C at Lumbini in Nepal . He attained enlightenment at Bodhgaya under papal tree.Budha died at the age of 80 years in 483 B.C at Kushinagar (District Uttar Pradesh).He gave 8 fold paths to control the desire.1st sermon was delivered by him at Sarnath at Banaras .The Language used by Buddhist people was pali .

Important facts to Know for General Studies

109. Red cross was founded by-J.H. Durant, Established in 1864 World red Cross day is celebrated on May 8, The Birthday its founder J.H. Durant.

110.Sir Robert S.S Baden Powell is the founder of scouting

111.Who gave the call go back to Vedas-Dayanand

112.The construction of Qutab Minar was begun by Quatab-ud-din Aibak but it was completed by Iltutmish.

113. Who built the Sanchi Stupa- Agrata.

114. Who founded slave dynasty in 1206 A.D Quatab-ud-din Aibak.

115. The Capital of Tripura is Agrata.

116. The Capital of Mizoram is aizawl.

117. The Capital of Australia is “Canberra.

118.Spring tides occurs on- Full moon day as well on new moon day.

119.Tides in the oceans are caused by-Attraction of the moon.

201.Buddhism place of worship is-Pongda.

121.Jews place of worship is-Synagogue.

122.Holish book of Jews-Talmud.

123.Malguddi days written by “R.K. Naraynan

124.Das capital-Karl Marx

125.The father of Economics- Adam smith.

126.The Chipko Movement was associated with-preventing felling of trees.

127.Pashmina is a breed of -Sheep.

128.What is the meaning of Buddha “An enlightened one.

129.Which is the holy book of Parsis- Jorah

130.Parliament of U.S.A is known as- Congress

131. Parliament of Afghanistan- Shoora

132. Parliament of Russia-Duma.

133. Parliament of Japan “Diet.

134.SARS:-It Stands for Severe Acute Respiratory Syndrome. SARS is caused by viruses from the corona and paramyxovirus family.

135.New Governors of India:-

- Kailashpati Mishra “Gujrat
- Ram Parkash Gupta “Madhya Pradesh
- O.P Verma -Punjab
- V.S Kokje - Himachal Pradesh
- Nirmal Chand - Rajasthan

136.LCA(Light Combat Aircraft)is named as “Tejas”

137. Lakshya is Pilot Less target Aircraft

138.Kalpna Chawla: She was an Indian born American Astronaut. She died with other six astronauts in the Columbia shuttle crash on feb.1, 2003.She embarked on her second Voyage in the United State space shuttle Columbia on Jan 16, earlier.She was an Indian born American Astronaut. She died with other six astronauts in the Columbia shuttle

Columbia on Jan 16, earlier. She

was one of the six astronaut crew that flew the

Columbia Flight STS-87in nov.1997 Chawla who had her schooling in Karnal (Haryana) and college education in Punjab did her Masters in Aerospace Engineering from the University of Texas in 1984 and Doctorate from Colorado University two year later. An avid flier, she held certified flight instructor’s license with Airplane and Glider ratings, commercial Pilot License for single and multi-engine land and seaplanes

139.Jan. 9, the day Mahatma Gandhi return from South Africa in 1915-was chosen to celebrate the Pravasi Bharatiya Divas

140.The five day 90th session of the Indian science congress conclude in Bangalore on Jan.7, 2003.The focal theme of the congress was Vision for the global Space community.

141. Srirangapatna and Ranthambore are the reserve for lion.

142. International Criminal court was launched formally in the mid march in the Hague. The first eighteen judges took Oath in the grand ceremony. The court has been set up to handle genocide and the Worst case of war crime or mass atrocities against civilians when no national court is able or willing to do so.

143. Right to Education:-article 21A provides the free and compulsory education to all children of the age of six to fourteen.

144. Freedom of information bill:- The parliament approved the “Freedom of information bill”.Now it is statutory right of the citizen to access information from the Government.

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147.Minister of state for defense is prof. Chaman lal gupta

148.Ajit singh is Agriculture Minister.

149. Japan is not a member of G-8 group.

150. APSARA is the name of the India’s first Nuclear Reactor.

151.The world environment day is celebrated on june 5.

152. Jainism:-Founded by (Rishabha)Varhamana Mahavira. He was a great 24th Triathankras (Pathfinder).Or prophet of Jainism .Mahavir was a greast Kshtiya ,born at Kundagram (Vaishali) in bihar. He came to be known as Mahavir of jina. The conqueror of passing; his following are known as Janis. He passed away at

age 72 in 462 B. C at Pavapuri, a place near modern Rajgir . Mahavira Teaching are known as the "Tri Ratna" or the three jewels of Jainism, which lead to the attainment of salvation . They are (I) Right Knowledge and (II) Right Action . The Jainis used and developed Prakrit, The language of the common people . Their religious literature was written in Ardhamagadhi.

153. Vasco da Gama landed in Calicut in 1498.

154. Ist Chinese traveler, Fahein came to India during the period of chandra Gupta-II (Vikramaditya)

155. 2nd Chinese traveler Hieun Tsang came to India during the reign of Harshvardhana

156. Who is the Napoleon of India "Samundra Gupta for his military exploits.

157. Harshvardhana written three books-1. Priya Darshika 2. Rattanavali 3. Naga Nanda.

The official poet of Harshvardhana was Banabhatt . Banabhatta composed Harsha Chirita and Kadambari

158. first battle of Panipat in 1526 and founded the Mughal dynasty in India

159. Second battle of Panipat was fought between Akbar and Ibrahim Lodhi at Panipat in 1556 Akbar Defeated Himu and became the ruler of Delhi and Agra

160 Third battle of Panipat fought between Ahmed Shah Abdali of Afghanistan and Marathas in 1761. In this third battle of Panipat Marathas were completely routed by Ahmed Shah Abdali.

161. Indian National Army was founded by Subash Chander Bose in 1943 in Singapore along with Rasbihari Bose. The main aim of Azad Hind Fauz was to liberation of India.

162. The Brahma Samaj was established by Raja Ram Mohan Roy in 1828 whose leadership was later taken by Rabindernath Tagore and Keshub Chandra Sen.

163. The Arya Samaj founded by Swami Dayananda Saraswati in 1875 attempted to reform the Hindu religion from its decadence.

164. The Ramakrishna Mission was founded by Swami Vivekananda in 1896 .

165. Annie Besant:- Founded Theosophical society started home rule league in 1916. She was the first woman president of Indian National Congress. Indian National Congress Founded by A.O. Hume in 1885. However first President of Indian national congress was W.C. Banerjee.

166. Swadeshi movement was started in 1905.

167. Gaddar party was founded by Lala Hardayal Singh in 1913 at Francisco.

168. Home rule league founded by Annie Besant and Bal Ganga Dhar Tilak in 1916.

1916. Rowlatt Act. Passed in 1919.

170. Non-Co-Operation movement started in 1920 by Gandhi ji. This movement ended in 1922 after Chauri Chaura incident.

171. Simons commission "1928

172. Civil Disobedience movement-1930

173. "Do or die" "Mahatma Gandhi

174. "Nightingale of India" - Sarojini Naidu.

175. "Father of Indian Unrest" - Bal Ganga Dhar Tilak.

176. "Architect of India" - Pandit Nehru.

177. Man of Peace

Man of Peace – Lal Bhadur Shastri.

178. Iron Man of India – Sardar.

179. jai hind – Subash chander Bose

180. Grand old man of India – Dada Bhai Naroji

Important Facts to Know for General Studies

181. Mughal Dynasty (1526-1540 and 1555-1857)

1. Babur (1526-1530)

2. Humayun

3. Sher Shah Suri (1540-45)

4. Akber (1556-1605)

5. Jahangir (1605-1627)

6. Shah Jahan (1628-1658)

7. Aurangzeb (1658-1707)

182. BABUR:

- Founder of Mughal Empire

- 1st battle of Panipat between Babur and Ibrahim Lodhi

183. HUMAYUN:

- Son of Babur

- Humayun Tomb at Delhi – 1st Mughal Monument

184. SHER SHAH SURI:

- He was an Afghan

- Introduced a brilliant administration

- Issued a coin called "Rupia"

- Build Grand Trunk Road Linking Peshawar to Calcutta

185. AKBAR:

a. Eldest son of Humayun

b. Real founder of Mughal empire

c. Good works done by him

d. Popular for his toleration

e. Foundation of Din-e-illahi (code of conduct)

f. Akbar Tomb – "Sikandria"

g. Largest building built called "Agra Fort"

h. Abdul Fazal was a famous Poet who has written Aine "Akbari", Akbar "Name"

186. JAHANGIR:

a. Real name Salim

b. Son of Akbar

c. He is known for his strict administration of Justice

d. He married Mehr-un-nissa or Nurjahan in 1601.

e. Jahangir's Tomb built at Lahore

f. Executed Guru Arjun Dev at the advice of Chand Singh

187. SHAH JAHAN:

a. Son of Jahangir

b. His wife Mumtaz Mahal died in 1631

- c. Built Taj Mahal in her memory in Agra
- d. Known for promotion of Art
- e. â€˜Red Fortâ€™ and â€˜Jama Masjidâ€™ got built by him
- f. Shah Jahan was imprisoned by his third son Aurangzeb till he died in 1666

188.AURANGZEB:

- a. Third son of shah jahan
- b. Ruled for 50 years and he was a cruel king
- c. Banned all religious festival and demolished Hindu Temples
- d. Executed Guru Teg Bahadur Ji (9th Guru) when he refused to embrace Islam

189. NADIR SHAH:

- a. A Persian King during the reign of Mohammd Shah took the â€˜Kohinoorâ€™ diamond to Afghanistan

190. Who was the first Governor of free India â€˜Lord Mountbatten

191. Who was the first Governor General of free India â€˜ C Rajagopalchari

192. Who was the first Governor of free British India â€˜Warren Hasting(1772-1793)

193. Who was the first father of Civil Service in India-Lord Cornwallis (1786-1793)

194. Who abolished sati Pratha and other cruel rites â€˜Lord W.Bentick (with the help of Raja ram Mohan Rai in 1829

195. Who introduced Widow Remarriage Act. In 1856 â€˜Lord Dalhousie

196. TRAI -Telecom Regulatory Authority of India

197. VRS-Voluntary Retirement Scheme

198. VAT-Value Added Tax

199. STD-Subscriberâ€™s Trunk Dialing

200. ISD-International Subscriberâ€™s Dialing

201. PAN â€˜Permanent Account Number

202. PIN â€˜Postal Index Number

203. NATO-North Atlantic treaty Organization

204. SAARC â€˜South Asian Association for Regional Cooperation.

205. C.R.R.-Cash Reserve Ratio.

206. I.S.R.O. -Indian Space Research Organization.

207. NASA-National Aeronautics and Space Administration.

208. V.D.I.S. â€˜Voluntary Disclosure Income Scheme

209. P.C.O. â€˜Public Call Office

210. L.P.G. â€˜Liquefied Petroleum gas

211. C.T.B.T. â€˜Comprehensive Test Ban Treaty

212. V.P.P. â€˜Value Payable Post

213. L.C.A. â€˜Light Combat Aircraft.

214. P.O.W. â€˜Prisoner of War.

215. T.E.L.E.X â€˜Teleprint Exchange.

216 L.C.C â€˜Line of Actual Control.

217. CNG-Compressed Natural Gas.

218. SMS â€˜Short Messaging Service.

219. OAPEC -Organization of Arab Petroleum Exporting Countries.

220.OPEC -Organization of Petroleum Exporting Countries

221. Interpol-International Criminal Police Organization its headquarter is in Lyons (Paris)

222. Who was the first man go to space- Yuri Gagarin
223. Who was the first Indian go to in Space- Rakesh
224. Who was the first Indian woman go to in Space â€“Kalpna Chawla.
225. Who was the first man land on moon â€“Neil Armstrong on 21, July, 1969.
226. Bangalore is the Silicon City of the India.
227. Hyderabad is the HI-Tech. City of India.
228. 2004 Olympics to be held in Athens.
229. Missile man of the India â€“A.P.J.Abdul Kalam Azad.
230. Capital of Fiji â€“ Suva.
231. Worldâ€™s largest river in South Americaâ€™s Amazon which flows into South Atlantic. The source is Glacier â€“Fed- Lakes.
232. Which of the first Indian state to be recognized on the basis of language â€“Andhra Pradesh.
233. When were the Indian states re-organized on linguist basis â€“1956.
234. Which scheduled deals with matters relating to anti defection â€“ 10th
235. Which scientist laid the foundation of atomic energy research in India â€“ Homi J. Bhabha.
236. Which branch of science studies the relationship between matter and energy â€“ Physics.
237. Which planet have no atmosphere â€“Mercury
238. Convex lenses are used for correction of â€“Short Sightedness
239. Which mirror is used as a rear view mirror in vehicles â€“Conves
240. Filament of an electric bulb is made of â€“Tungsten
241. The oil in the wick of an oil lamp rises up due to â€“Capillary action
242. The best conductor of heat â€“Silver
243. A radar which detects the presence of an enemy air craft uses â€“Radio Waves
244. Velocity of sound is maximum in â€“Steel
245. The terminal colour of Rainbow are â€“Red & Blue
245. The gas extinguish fire is â€“Carbon Monoxide
246. The purest form of carbon is-Diamond.

Important Issues: Current Affairs

1. Which movie has won the best motion picture of the year award at Oscars, 2005- Million Dollar Baby
2. Which political party has won the maximum number of seats in the recently held assembly elections in Bihar - Janta Dal â€“United
3. Jamie fox has won the best actor award in the Oscars, 2005. For which movie, He has been awarded â€“ Ray
4. 77th Oscars, 2005 has awarded â€œBest actress award in a leading Roleâ€œ To â€“ Hilary swank
5. President of Afghanistan was on a visit to India during February â€“ March, 2005. His name is -Mr. Hamid Karzai
6. Who is the richest Indian as per â€œForbesâ€™ list â€“ Lakshmi Niwas Mittal
7. Which film has won the 51st National Film Awards, 2005 in the category of Best Feature film on National Integration also called â€œNargis Dutt Awardâ€™ â€“ Pinjar

(Hindi)

8. Who has won Dada Saheb Falke Award, 2003 declared in the National Film Award ceremony, 2005 -Ashok Kumar (Posthumously)
9. Dr. A.P.J Abdul Kalam, the President of India is the author of the book “ The Wings of Fire and Ignited Minds
10. Nanavathi Commission relates to - Terrorists attack in Indian Parliament
11. A.D. stands for “ Anno Domini
12. Tony Blair, Prime minister of Britain, belongs to “ Labour Party
13. RSVP stands for - Respondez S’il Vous Plait
14. The first Nobel Peace Prize was awarded to “ in 1901 “ J.H.Dunant
15. Which French Engineer designed the structure of the statute of liberty “
16. Which of the following is called the Mother of all Parliaments “ The British Parliaments .
17. As per Human Development Report of 2004, what is full form of HDI “ Human Development Index.
18. Alagh Committee relates to “ Civil Services Examination.
- 19.. Treaty on “Ozone depletion” “ Montreal Treaty.
- 20.. First Chief Election Commissioner of India was “ Sukumar Sen.
- 21.. East Timor received independence in 2002 from “ Indonesia
22. First woman Prime Minister in the world was of “ Sri Lanka.
23. Gratuity is paid at the rate of 15 Days wages for each completed year of service .
24. Postal service in India was opened to the public in 1837.
25. The person was facilitated with “Nishan-e-Pakistan” “ Dilip Kumar
26. The author of the book “Harry Potter and the Half Blood Prince” is “J.K.Rowling.
27. “Fallujah” city, which was recently in news, is in -Iraq
28. The Government of India recently announced a special development package of Rs. 250 crore for the development of “Manipur
29. M.S. Subbalakshmi who died recently was a famous “Classical Singer.
30. In Which country a non-resident Indian Mr. Bobby Jindal recently won the Parliamentary elections? “US
31. Where is Halebidu “a place Which is well known for its elaborately sculptured temples of the Hoysala period?-Karnataka
32. Where is Meenakshi-a famous Hindu temple? “Madurai
33. Where is Sriharikota , India’s satellite launching centre? Andhra Pradesh
34. The Tower of Victory is located in- Rajasthan.
35. Alexander Graham bell is credited with the invention of-Telephone.
36. “The Television” was invented by-J.L.Baird.
37. where is the longest railway platform in the world - Kharagpur
38. which of the following countries is called the land of white elephant - Thailand
39. The capital of Greece is “ Athens
40. The Headquarters of United Nations Educational, scientific and cultural organization (UNESCO) are located in-Paris.
41. Who is the first Indian recipient of the Olympic Gold Order-Indira Gandhi?
42. The Largest monument in the world Quetzalcoatl Pyramid is in-Cairo
43. Which planets of our solar system do not have moons-Mercury and Venus.

44. Two of Ashoka's lion pillars built in the 3rd century B.C. stand perfectly preserved even today at their original location. One is at Lauriya Nandangarh. Where is the other? - Sarnath
45. Which article of the constitution of India provides for the post of Governor of state? - Article 153
46. In which State is the Sun Temple Suryan Kovil located? - Tamil Nadu
47. At which of the following Olympic Games did the Indian Hockey team win its first gold medal? - Amsterdam
48. First Chief Election Commissioner of India was - Sukumar Sen.
49. East Timor received independence in 2002 from - Indonesia.
50. First woman Prime Minister in the world was of - Sri Lanka.
51. Deficiency disease Vitamin A - Night Blindness, Vitamin B - beriberi, Vitamin C - scurvy, Vitamin D - Rickets, Vitamin E - Skin and hair disease, Vitamin K - Clotting of Blood.
52. Rich sources of Vitamin A - Carrots, PEM - Protein Energy Malnutrients.
53. Disease due to deficiency of Iron - Anemia, Life time of RBC - 120 Days

TEACHING AND RESEARCH POTENTIAL

- Navodaya Vidyalaya Samiti was registered as a society on 15 August 1950
- Who was the Chairman of the first Indian Education Commission - Sir John Hunter
- Who organizes the National Talent Search Competitive Test - N.C.E.R.T.
- When was Central Advisory Board of Education set up - 1956
- Navodaya Vidyalayas have been set up - In Rural Areas
- The programme Gyan Vani is broadcasted by - AIR
- When was N.C.E.R.T. Established - 2nd Oct. 1971
- In 1936-37 who submitted the report on technical Education - Abbot
- Who conducts the admission test for Navodaya Vidyalayas - N.C.E.R.T.
- Who was the chairperson of Wardha Scheme - Zakir Hussain
- National law school of India is situated at - Bangalor
- A.I.C.T.E. stands for - All India Council of Technical Education
- In which year University Grants Commission Act was passed - 1956 A.D.
- The central Institute of Indian Languages is located at - Mysore
- Which Organization was established during Bengal Partition - National Council of Education
- Which was the first University to be opened in Britishers time? - Calcutta University
- To whom did Lord Macaulay present the famous Macaulay's minute? - Lord Bentinck
- In which year C.B.S.E. set up open school? - 1985
- What was the other name for hunter commission - Indian Education Commission
- What amount was sanctioned by Charter Act of 1813 to be spent on education? - One Lakh
- Reshtriya Sanskrit Sansthan has its head quarters at - New Delhi
- Which is the first open University of India? - Indira Gandhi open University New

Delhi

• What is the Minimum qualification required to appear in any examination of the Open University ? • "No Minimum qualification

• Regional College of Education for the Northern region is located at • "Ajmer

• Where is situated the Regional College of Education for the eastern region ?
• "Bhubaneswar

• Where is Regional College of Education for Western region ? • "Ujjain

• Regional College of Education for the Southern region is at • "Mysore

• The Regional Colleges of Education were set up by the N.C.E.R.T. with the co-operation of • "Planning Commission of India

• Generally the medium of instruction in Public School is • "English

• The famous Doon Public School is located at • "Dehra Dun

• The famous Doon Public School Bishop Cotton is situated at • "Shimla

• The famous Lawrence Public School is at • "Sanawar

• The famous Shivaji Public School is at • "Pune

• The famous Air Force Central School is situated at • "Delhi Cantt

• Tamil Nadu has a Sainik School at • "Amravathinagar

• The Sainik School in Orissa is at • "Bhubaneswar

• The Sainik School in Karnataka is at • "Bijapur

• Gandhi had which Educational Degree ? • "Law

• Gandhi got his law Degree from • "England

• Where did Gandhi as a teacher ? • "South Africa

• Who said "A cowardly teacher cannot make his students valiant ? • "M.K. Gandhi

• Effective teaching is a function of -Teacher's methodology

• What should be the attitude of the teacher towards school authorities ? • "Cordial

• The attitude of teacher towards new idea should be • "Receptive

• Teachers should be made accountable for • "Teaching

• An excellent teacher must be • "Good guide

• As a teacher, you are never supposed to be angry • "I am a human and can also be angry

• What is your Prime duty as a teacher ? • "To help the student in understanding Physical and Social Environment

• What is the best Quality of the teacher ? • "good human subject being

• The enthusiastic teachers generally ? • "involve the students in learning"teaching process

• A teacher has better chances of succeeding if ? • "he is properly trained for the profession

• Does the teachers enjoy the freedom to make their syllabus flexible ? • "False

• A good teacher can overcome the defects of ? • "System

• A quality teacher always reaches the school ? • "Before the morning assembly is over

• Why you want to make teaching as a career ? • "it make you eligible for the profession in ten months

• Generally a good number of students do not like to go to the class rooms because- the curriculum is dull

• What is attitude – feeling
 • A good teacher priority in school is his – students
 • People’s attitude towards teaching is becoming positive because – perceiving teaching as a profession
 • Who can be creative teacher- develop thinking ability among the students
 • Among the students faith in the human values can be generated through – Moral Education
 • If as teacher you give too much liberty to students what will be result – indiscipline in the class room
 • If some one does not agree with you what will you do – polite explain your view point to him
 • As a teacher what means of recreation will you like to prefer – literary magazines and news papers
 • A teacher always learns and he learns from – Students
 • What enhances the status and respect of a teacher – community service
 • Why a teacher fails in maintaining discipline in the class – because he lacks consistency in his approach to discipline
 • What type behavior is expected from a teacher in the class room – calm, dignified and composed
 • Why a teacher should be lover of sports – it encourages the students to take part in sports

WHAT ARE COMPUTERS?

Computers have been around since the Chinese Abacus. They are here to stay. There is a certain feel and flow to the logic that directs their activities.

Electronically, all computers work about the same. Computers vary widely in size and use. However all computers are similar in what the hardware does. So-called microcomputers (like your desktop Personal Computer (PC)) are designed for personal use, relatively low price, and modest data processing tasks.

Minicomputers are moderate sized (a small refrigerator size) and perform more complex tasks with larger amounts of data. Minicomputers might be used in a small engineering office or a local bank branch to send transaction data to a head office computer.

Mainframe computers are large, expensive and process billions of characters of data rapidly and fill entire rooms.

Finally, supercomputers are built to minimize distance between circuit boards and operate at very high speed for complex uses such as designing airplanes, animating complex movie sequences graphically or solving complex engineering formulas having billions of steps mathematically. Supercomputers are built for raw speed. Supercomputers are the main servers in the Internet System.

Some terms apply to all computers. INPUT is how data gets into a computer. The keyboard and mouse are familiar INPUT devices. OUTPUT references how data is provided from the computer. A Monitor or printer are good examples of OUTPUT devices.

PRIMARY STORAGE or MEMORY is the computer’s immediate data storage area - usually this is in small integrated circuit chips which hold data ONLY while power is

supplied. This PRIMARY STORAGE area is thus temporary. More permanent SECONDARY STORAGE is used when computer power is off or when data overflows primary storage. This is usually floppy or hard disk drives but can include paper tapes, punch cards, or even non-volatile magnetic bubble memories.

A computer system includes computer hardware, software and people. A computer is a device capable of solving problems or manipulating data by accepting data, performing prescribed operations on the data, and displaying the results in the desired form. The computer is a useful tool for data (or Information) Input, storage, processing and output.

HISTORY -HOW, WHERE, WHEN DID IT ALL START?

The first computational device was the abacus. This has been in continuous use for thousands of years. During the 1600's the Pascal adding machine was developed. This was a mechanical device that laid the groundwork for today's odometers and gas meters. The 1800's saw many machines developed that were controlled by punch cards - weaving looms. The theoretical basis for electronic circuitry was developed in the mid 1800's. In 1947, just after the first electronic computer was built, the transistor was invented, enabling the birth of vastly less expensive, more reliable computers. Even with transistors, computers were still too complex and costly for widespread use until the advent of the integrated circuit (IC) in 1961 made truly inexpensive computers possible at last.

From this point forth there were many firsts as computers became less mechanical, smaller, faster and cheaper. In 1971, IC technology progressed to a point where a complete central processing unit - the heart of the computer - could be integrated on a single piece of silicon, giving birth to the microprocessor. The microprocessor led to the personal computer. The Personal Computer is distinguished by its size, cost, and applications for small business and the home. The first one appeared in January 1975 and was the Altair 8800 kit. Only hobbyists bought these. Then the Radio Shack TRS 80 and Apple computers hit the market as the first pre-assembled microcomputers.

Market growth remained sluggish until two business students - Dan Bricklin and Dan Fylstra - developed a program to run on Apple computers to handle the tedious recalculations in their school assignments. This program was called VisiCalc and is the forerunner to the spreadsheet program Lotus 123.

With VisiCalc as a useful tool, Apple sales took off. Apple became the standard because all programs were written for Apple. Today in the US, Apple still dominates the school market.

In 1981 IBM introduced its PC. IBM's legacy still dominates the industry today. The PC was unable to run Apple software. Unlike Apple or other IBM products, the IBM PC had an open architecture. This means the technical details of how it operated were published with the product's introduction. This permitted hundreds of companies to write software (programs) for the IBM PC and a variety of hardware accessories. Adding IBM's sterling reputation, the open architecture did enable rapid market penetration. The microcomputer was no longer a toy, it was a business tool.

The open architecture also allowed for the generation of a host of lower cost compatible computers. IBM had traded quick initial market entry for eventual erosion of market share. In both instances, the consumers' benefit. In the early 90s Computers were applied variously in the fields of Science, Technology and Space exploration.

Initially, PCs revolutionized how businesses are run, but today, computers deepest impact are felt in the merging of Communications and Information. The emergence of the World Wide Web and the explosion of Internet usage is having far-reaching effects on all aspects of society.

Success and progress in all spheres of life, is now driven by Information and Technology. The future is bright, but it is up to every user of the technology to see that it is used to positive effect.

History of Computers:

1. First Generation (1939-1954) - vacuum tube

• 1937 - John V. Atanasoff designed the first digital electronic computer

• 1939 - Atanasoff and Clifford Berry demonstrate in Nov. the ABC prototype

• 1941 - Konrad Zuse in Germany developed in secret the Z3

• 1943 - In Britain, the Colossus was designed in secret at Bletchley Park to decode German messages

• 1944 - Howard Aiken developed the Harvard Mark I mechanical computer for the Navy

• 1945 - John W. Mauchly and J. Presper Eckert built ENIAC at U of PA for the U.S. Army

• 1946 - Mauchly and Eckert start Electronic Control Co., received grant from National Bureau of Standards to build a ENIAC-type computer with magnetic tape input/output, renamed UNIVAC in 1947 but run out of money, formed in Dec. 1947 the new company Eckert-Mauchly Computer Corporation (EMCC).

• 1948 - Howard Aiken developed the Harvard Mark III electronic computer with 5000 tubes

• 1948 - U of Manchester in Britain developed the SSEM Baby electronic computer with CRT memory

• 1949 - Mauchly and Eckert in March successfully tested the BINAC stored-program computer for Northrop Aircraft, with mercury delay line memory and a primitive magnetic tape drive; Remington Rand bought EMCC Feb. 1950 and provided funds to finish UNIVAC

• 1950- Commander William C. Norris led Engineering Research Associates to develop the Atlas, based on the secret code-breaking computers used by the Navy in WWII; the Atlas was 38 feet long, 20 feet wide, and used 2700 vacuum tubes

• 1951 - S. A. Lebedev developed the MESM computer in Russia

• 1951 - Remington Rand successfully tested UNIVAC March 30, 1951, and announced to the public its sale to the Census Bureau June 14, 1951, the first commercial computer to feature a magnetic tape storage system, the eight UNISERVO tape drives that stood separate from the CPU and control console on the other side of a garage-size room. Each tape drive was six feet high and three feet wide, used 1/2-inch metal tape of nickel-plated bronze 1200 feet long, recorded data on eight channels at 100 inches per second with a transfer rate of 7,200 characters per second. The complete UNIVAC system weighed 29,000 pounds, included 5200 vacuum tubes, and an offline typewriter-printer UNIPRINTER with an attached metal tape drive. Later, a punched card-to-tape machine was added to read IBM 80-column and Remington Rand 90-column cards.

• 1952 - Remington Rand bought the ERA in Dec. 1951 and combined the UNIVAC product line in 1952: the ERA 1101 computer became the UNIVAC 1101. The UNIVAC I was used in November to calculate the presidential election returns and successfully predict the winner, although it was not trusted by the TV networks who refused to use the prediction.

• 1954 - The sage aircraft-warning system was the largest vacuum tube computer system ever built. It began in 1954 at MIT's Lincoln Lab with funding from the Air Force. The first of 23 Direction Centers went online in Nov. 1956, and the last in 1962. Each Center had two 55,000-tube computers built by IBM, MIT, AND Bell Labs. The 275-ton computers known as "Clyde" were based on Jay Forrester's Whirlwind I and had magnetic core memory, magnetic drum and magnetic tape storage. The Centers were connected by an early network, and pioneered development of the modem and graphics display.

2. Second Generation Computers (1954 -1959) - transistor

• 1950 - National Bureau of Standards (NBS) introduced its Standards Eastern Automatic Computer (SEAC) with 10,000 newly developed germanium diodes in its logic circuits, and the first magnetic disk drive designed by Jacob Rabinow

• 1953 • Watson Junior led IBM to introduce the model 604 computer, its first with transistors, that became the basis of the model 608 of 1957, the first solid-state computer for the commercial market. Transistors were expensive at first, cost \$8 vs. \$.75 for a vacuum tube. But Watson was impressed with the new transistor radios and gave them to his engineers to study. IBM also developed the 650 Magnetic Drum Calculator, the first by IBM to use magnetic drum memory rather punched cards, and began shipment of the 701 scientific "Defense Calculator" that was the first of the Model 700 line that dominated main frame computers for the next decade

• 1955 - IBM introduced the 702 business computer; Watson on the cover of Time magazine March 28

• 1956 - Bendix G-15A small business computer sold for only \$45,000, designed by Harry Huskey of NBS

• 1959 - General Electric Corporation delivered its Electronic Recording Machine Accounting (ERMA) computing system to the Bank of America in California; based on a design by SRI, the ERMA system employed Magnetic Ink Character Recognition (MICR) as the means to capture data from the checks and introduced automation in banking that continued with ATM machines in 1974

3. Third Generation Computers (1959 -1971) - IC

• 1959 - Jack Kilby of Texas Instruments patented the first integrated circuit in Feb. 1959; Kilby had made his first germanium IC in Oct. 1958; Robert Noyce at Fairchild used planar process to make connections of components within a silicon IC in early 1959; the first commercial product using IC was the hearing aid in Dec. 1963; General Instrument made LSI chip (100+ components) for Hammond organs 1968

• 1964 - IBM produced SABRE, the first airline reservation tracking system for American Airlines; IBM announced the System/360 all-purpose computer, using 8-bit character word length (a "byte") that was pioneered in the 7030 of April 1961 that grew out of the AF contract of Oct. 1958 following Sputnik to develop transistor computers for

BMEWS

• 1968 - DEC introduced the first "mini-computer", the PDP-8, named after the mini-skirt; DEC was founded in 1957 by Kenneth H. Olsen who came for the SAGE project at MIT and began sales of the PDP-1 in 1960

• 1969 - Development began on ARPAnet, funded by the DOD

• 1971 - Intel produced large scale integrated (LSI) circuits that were used in the digital delay line, the first digital audio device

4. Fourth Generation (1971-1991) - microprocessor

• 1971 - Gilbert Hyatt at Micro Computer Co. patented the microprocessor; Ted Hoff at Intel in February introduced the 4-bit 4004, a VLSI of 2300 components, for the Japanese company Busicom to create a single chip for a calculator; IBM introduced the first 8-inch "memory disk", as it was called then, or the "floppy disk" later; Hoffmann-La Roche patented the passive LCD display for calculators and watches; in November Intel announced the first microcomputer, the MCS-4; Nolan Bushnell designed the first commercial arcade video game "Computer Space"

• 1972 - Intel made the 8-bit 8008 and 8080 microprocessors; Gary Kildall wrote his Control Program/Microprocessor (CP/M) disk operating system to provide instructions for floppy disk drives to work with the 8080 processor. He offered it to Intel, but was turned down, so he sold it on his own, and soon CP/M was the standard operating system for 8-bit microcomputers; Bushnell created Atari and introduced the successful "Pong" game

• 1973 - IBM developed the first true sealed hard disk drive, called the "Winchester" after the rifle company, using two 30 Mb platters; Robert Metcalfe at Xerox PARC created Ethernet as the basis for a local area network, and later founded 3COM

• 1974 - Xerox developed the Alto workstation at PARC, with a monitor, a graphical user interface, a mouse, and an ethernet card for networking

• 1975 - the Altair personal computer is sold in kit form, and influenced Steve Jobs and Steve Wozniak

• 1976 - Jobs and Wozniak developed the Apple personal computer; Alan Shugart introduced the 5.25-inch floppy disk

• 1977 - Nintendo in Japan began to make computer games that stored the data on chips inside a game cartridge that sold for around \$40 but only cost a few dollars to manufacture. It introduced its most popular game "Donkey Kong" in 1981, Super Mario Bros in 1985

• 1978 - Visicalc spreadsheet software was written by Daniel Bricklin and Bob Frankston

• 1979 - Micropro released Wordstar that set the standard for word processing software

• 1980 - IBM signed a contract with the Microsoft Co. of Bill Gates and Paul Allen and Steve Ballmer to supply an operating system for IBM's new PC model. Microsoft paid \$25,000 to Seattle Computer for the rights to QDOS that became Microsoft DOS, and Microsoft began its climb to become the dominant computer company in the world.

• 1984 - Apple Computer introduced the Macintosh personal computer January 24.

• 1987 - Bill Atkinson of Apple Computers created a software program called

HyperCard that was bundled free with all Macintosh computers. This program for the first time made hypertext popular and useable to a wide number of people.

5. Fifth Generation (1991 and Beyond)

• 1991 - World-Wide Web (WWW) was developed by Tim Berners-Lee and released by CERN.

• 1993 - The first Web browser called Mosaic was created by student Marc Andreessen and programmer Eric Bina at NCSA in the first 3 months of 1993. The beta version 0.5 of X Mosaic for UNIX was released Jan. 23 1993 and was instant success. The PC and Mac versions of Mosaic followed quickly in 1993. Mosaic was the first software to interpret a new IMG tag, and to display graphics along with text. Berners-Lee objected to the IMG tag, considered it frivolous, but image display became one of the most used features of the Web. The Web grew fast because the infrastructure was already in place: the Internet, desktop PC, home modems connected to online services such as AOL and Compuserve

• 1994 - Netscape Navigator 1.0 was released Dec. 1994, and was given away free, soon gaining 75% of world browser market.

• 1996 - Microsoft failed to recognize the importance of the Web, but finally released the much improved browser Explorer 3.0 in the summer.

WHY DO WE USE COMPUTERS?

This is similar to asking why do we use cars? But too many people and organizations purchase and use Computers for the wrong reasons. Computers are practical tools to be used in helping you get results.

Computers are needed where:

1. There is a need for a more accurate and cost effective knowledge to assist decision making. Success and progress is now being determined by your access to information and how you use that information to get results.
2. It is impossible to get results due to either time constraint or sheer magnitude of work involved.
3. It will reduce the mental and physical effort in tackling certain tasks.
4. There is intense competition and there is a need for cost efficiency through the elimination and reduction of inefficient practices.
5. There is a need to assist in enhancing Customer service.
6. There is a need for correct forecasting of market trends to ensure business survival.

COMPUTER APPLICATIONS

Due to technological developments, Computers are now used in virtually all spheres of life. Here are a few of the application areas:

SCIENCE & TECHNOLOGY (S&T)

Computers are used in S&T to promote advances that could be useful to mankind, i.e. discovering better and more efficient ways of doing things. They are especially useful for humanly intractable calculations and simulation experiments. This is especially critical in situations where it would be too risky or expensive to directly carry out the required operation. For example, in Space exploration, underwater exploration, testing of new

drugs, etc. Computers enable S&T professionals can carry out their practical procedures using faster, more accurate and safer methods.

EDUCATION

Computers are useful for promoting learning experiences. From the toddler to the full grown adult, educational Computer tools are available. Computers are useful for learning about Computers and learning about other subjects, i.e. using Computer Assisted Learning software. Learning is usually interactive and can be reinforced over and over. For children, the advent of Multimedia, has made learning fun. They often don't realize it when they're playing that they are also learning.

BANKING & FINANCE

Computers are very useful for handling financial transactions, most especially the storage and processing of huge amounts of information kept by financial institutions. Computers enhances Customer service, through the provision of upto date and timely information for their Customers.

Computers additionally assist with the monitoring of operational costs, to ensure cost effectiveness and profitability of operations.

In some financial institutions, Computers are used to identify trends and provide timely information for present and future management decision making.

RECREATION

On your average PC, you can play a variety of games. You know what they say about Jack. With the games, you could be the sole player, play against the Computer or you and a friend could play against each other.

SECURITY

Computers are useful for storing information about crimes, criminals and suspects. This can be very useful in Crime detection and prevention. Such systems can be interfaced with photograph capturing and fingerprint systems. They can also be linked to mobile radio communication systems over a wide area to enable in the fast and efficient sharing of information on Criminal activities. Such systems would possess enquiry facility for historical and analytic purposes.

There so many other areas where the impact of the Computer is being felt such as Medicine, Law, Sports, Entertainment, Media, Building, Construction, etc.

In every situation the Computer performs different functions relating to Information storage, input, output and processing. It is no wonder that productive Computer based activity is referred to popularly as Information Technology. What are Computers? A computer system includes computer hardware, software and people.

HARDWARE versus SOFTWARE

What is the difference between computer hardware and software?

HARDWARE

In simplest terms, hardware is the physical parts associated with a computer - the electronic, magnetic, and mechanical devices (monitor, keyboard, printer, micro chip boards, floppy drives, cables and physical pieces of a system. These INPUT/OUTPUT

DEVICES allow the operator to interact with the computer.

SOFTWARE

Sets of programs (stored sets of instructions) that govern the operation of the computer system and make the hardware perform. These programs (instructions) tell the hardware how to do a particular task such as word

processing, games, database management, etc. Although these instructions are usually stored inside a piece of hardware (e.g., software instructions stored inside a circuit chip or floppy drive) but they are nevertheless software.

In a way, Software refers to the instructions that enable an otherwise dead machine to understand your inputs and transform them into desired outputs. Computer hardware by itself lacks personality; this is determined by the software. Word processing software turns the computer into a word processor, accounting software turns the computer into an accounting tool, etc.

Lets discuss a bit about Software before we go back to Hardware. **There are two major types of software: Operating system software and Applications software.**

Operating system software (like DOS, UNIX or Windows 95) performs very elemental housekeeping instructions (e.g., where is the monitor, how can I keep track of what data is on which track or sector of a floppy drive, whether more than user can work on the system at the same time e.g. UNIX.)

The operating system that all IBM and compatible PC's use is called DOS (sounds like floss). DOS is software that allows the terminal, printer, computer and mass storage systems (floppy disks) to work together as a unit, and controls the execution of programs. It also allows you to do housekeeping chores regarding managing disks and files.

Applications programs perform tasks on a higher level (e.g., word processing Spreadsheet, Games, Database Management, Accounting, Payroll programs are applications.) Generally an application software package uses the lower level operating system (DOS) to do routine tasks (e.g., your word processing application uses the lower level DOS operating system frequently to write and store data on a disk.

And what is a Database?

A database is a collection of information that is organized for ease of reference. For example, your address book is a database, just as an inventory of goods, a list of all churches in your state or your staff list.

Before Electronic processing of information, databases had to be maintained on paper stored in file folders that were kept in filing cabinets. With Electronic DataBase Management Systems (DBMS), information stored electronically and be recalled instantly and accurately.

HARDWARE

CENTRAL PROCESSOR UNIT (CPU)

Heart of the PC - it contains the microprocessor. The CPU is a set of miniaturized circuits that does all the "thinking". It controls the interpretation (arithmetic-logic unit) and execution (control unit) of instructions. The CPU in conjunction with Random Access Memory (RAM) comprise the computer's "brain". The CPU does the "thinking / calculating" while RAM contains the instructions or "memories".

It is the CPU that largely determines the operating speed of the computer. The type of processor on your PC will determine the nature of functions it can carry out and the speed

at which instructions are carried out. For example, while a 286 processor would struggle to load Windows 3.1, a 486 processor loads it easily. Additionally, a 286 processor is obviously incapable of running most new software. Pentium processors are now as fast as 200 MHz.

Now the good stuff. Let's read on and want delve into great complexity. Now it's time to delve deeper into the heart of the computer. The central processing unit or CPU is the "brains" of every computer. On the PC, the CPU is simply a tiny integrated circuit. It is the control center and contains two circuit elements to perform tasks plus several special locations or memory areas called registers which hold instructions.

Registers, located within the CPU chip are temporary storage locations which hold instructions. Secondly, the arithmetic logic unit or ALU is the location within the CPU where basic math and logic operations take place (such as addition and subtraction.) Finally, the control unit is a portion of the CPU which directs all elements of the computer. It does not add or subtract like the ALU, it only directs the activity.

Despite this seeming complexity, a basic fact remains: all digital computers can only add and subtract two numbers: zero and one! Let's back up a bit. For purposes of digital computer electronics, internally a computer can only respond to two things: on and off - just like a light switch. These electronic states of being might actually be a positive and negative voltage or a high and low voltage stored in a series of transistors etched in silicon on a chip, but to the computer the logic is on or off. Two conditions, that is all. Back in the human world we can represent these as one and zero (1 and 0). A special branch of mathematics deals with calculations of numbers represented by 1 and 0 which is called binary arithmetic.

We rarely think of 0 as a number since we consider it NOTHING.) To computers ZERO is always a number!!!

To a computer these binary numbers march together in a long string, one after another. Remember, the CPU has only two numbers to work with: 1 and 0.

Human Decimal 0 1 2 3 4 5 6 7 8 9 10 11 12

Computer Binary 0 1

WHAT IS THE DIFFERENCE BETWEEN A BIT AND A BYTE?

The IBM PC and its clones generally use 8 bits (electrical pulses) to make up a byte (computer word.) A ninth "odd bit" is used for error checking (parity testing) to make sure the other eight bits are not accidentally erased or lost during storage or use by the computer.

Bits are like alphabet characters and bytes are like the words made up from alphabet characters. Bits and Bytes are used to measure information by the computer.

BIT

Smallest unit of information recognized by the computer. BIT is short for Binary Digit. A Binary Digit can be either a 0 or a 1. Several bits make up a byte.

BYTE

A group of 8 BITS. This grouping of adjacent binary digits (bits) is operated on by the computer as a unit. Computers use 1

BYTE to represent 1 character such as a letter of the alphabet, a number, a punctuation mark, a space, etc. A BYTE is also a unit of measure since it represents 1 character. For example, when the letter "A" is pressed, the keyboard actually sends the following to RAM: 10000001 - a set of 8 bits.

RANDOM ACCESS MEMORY (RAM)

Think of a computer as a human brain. Your brain is a memory sponge. It contains a lifetime of memories that cause us to act or react based on inputs. Inputs come through our 5 senses. If you see and smell hot suya burning on the grill (inputs) you know how to react based on previous experiences. A set of miniaturized circuits which represents the working memory of the computer. This is where application programs (software) can be loaded from the outside and then executed. The larger the RAM the better. A typical single user computer system may contain approximately 8,000,000 bytes of RAM. (This is often abbreviated as 8MB RAM.)

The computer's brain consists of the RAM and the CPU. The CPU and RAM work together as the computer's "brain". Each day when we start up the computer one of the first tasks will be to fill RAM with instructions to give it an ability to do work. This work may be in the creation of documents or tracking accounting data.

You control which instructions will go into the computer's brain. You control the sets of experiences you will provide the computer. Once in RAM, the computer will evaluate inputs from many devices and react. The most typical input device is a keyboard. As you type commands, the computer evaluates them. Based on the set of instructions within its RAM, it will follow some action: print a document, calculate, send information over a telephone line, etc.

At some later point you may empty the computer's brain and install a different set of instructions, thus giving it a different ability.

The RAM is emptied when the computer is turned off - thus it is often called "volatile" memory. WHAT YOU SEE ON YOUR COMPUTER MONITOR IS ACTUALLY IN RAM ONLY - a temporary storage location. To make it permanent we "save" it or "write" it to a floppy disk or hard drive. These devices are non volatile storage - they do not require electricity.

Each time the computer is turned off, all information within RAM is lost. RAM is called volatile memory because of the electricity requirement.

READ ONLY MEMORY (ROM)

This is a special section of memory that contains instructions which are activated each time the computer is turned on. These instructions are set at the factory and cannot be changed - thus, they can only be "read", not written to. ROM instructions perform equipment checks and initialization of the computer prior to each use.

DISKS

Think of disks as cassettes. You can record information on a cassette that can be replayed indefinitely and if desired, recorded over. Floppy and Hard Disks operate in a similar fashion. We record (Save) something we have created - like a document - onto the disk. Then, hours, days, or months later we can play back (Retrieve) the document into the

computer to alter or print out.

The magnetic disk used to store information works in a manner similar to a tape recorder - magnetic impressions are placed on the tape and can be later replayed. A magnetic computer disk works in the same fashion but spins in a circle like a music record rather than moving in a straight line like recording tape.

Magnetic computer disks are available in two basic types: floppy and hard disks. Just like cassettes, the Floppy and Hard Disks do not require electricity to retain their information. Hard Disks and Floppy Disks are similar. However, Hard Drives have a larger capacity for file storage, are faster and are less likely to fail due to the protected environment from within which they operate. Floppy and Hard Disks are nonvolatile in nature because they will retain their information without the aid of electricity.

A hard disk can hold considerably more information than a floppy disk - frequently billions and millions of computer words (or "bytes") while a floppy disk holds less than a million in many cases. However what the floppy disk loses in capacity it gains in the advantage of portability since it can easily be removed from the PC and stored which is not true of the hard disk.

When you format a disk you ask the computer to inspect the magnetic surface of the disk for any errors, prepare it for use by future data and create an index "file allocation table (FAT)" which is like a card index for a large library of books. Formatting a disk is a little like taking a blank piece of paper and using a pencil and ruler to turn it into graph paper with both horizontal and vertical lines. What was blank before now has little cells or file drawers which can hold information.

DISK DRIVE

The port in which a floppy disk is inserted. This device "reads data from a magnetic disk, and copies data into the computer's memory (RAM) so it can be used by the computer, and that "writes" data from the computer's memory onto a disk so it can be stored for later use. Each Disk Drive is labeled A,B,C, etc. because we often must tell the computer which drive has the disk with the information or where to send the information. A Disk Drive reads and writes on a 5.25 inch or 3.5 inch floppy disk.

FLOPPY DISKS

The most commonly used mass storage device. Allows entering programs to RAM and saving data from RAM. Will hold data even after the computer is turned off. Data on these disks is stored in concentric rings called tracks. The Disk surface is a thin piece of mylar and is coated with a magnetized material similar to audio or video tape.

The read/write heads can magnetize and demagnetize the coated surface repeatedly.

Therefore, the Disk can be used, erased, and reused indefinitely.

Floppy disks are also available as double density and high density format. A standard floppy diskette is either 5D inches or 3A inches square. Obviously the high density of 3A" diskette contains more information than the 3A" double density diskette. A 5D" Double-sided, Double density disk holds approximately 360k worth of information (250 double spaced pages of text). The smaller 3.5 inch Double density disks which hold at least twice as much - 720k.

Working with floppy diskettes.

To insert a floppy diskette into your computer drive, first remove it from the paper or plastic slipcover if one protects it. The proper way to insert a floppy diskette in most drives is as follows.

For larger 5 - 1/4 inch floppies, turn the printed label side up and locate the TWO VERY TINY notches along one edge. Near the notches will be a jelly bean shaped hole about one inch long cut into the plastic surface of the diskette. This oblong hole is the read/write opening. Insert the diskette into the drive with the label side up and the two tiny notches FIRST into the drive opening then close the drive locking handle. Along one edge of the diskette you will also see a SINGLE square shaped hole which is the write protect notch.

If this write protect notch is UNCOVERED you can BOTH read and write data to the diskette. If the write protect notch is covered with a piece of tape, then you can READ information from the diskette but you CANNOT write information to the diskette. This is a safeguard feature you may wish to use from time to time. Keep fragile diskettes away from smoke, hair, dirt and ESPECIALLY sources of magnetism such as motors, loudspeakers or even children's magnetic toys which may ERASE your data!

For smaller 3 - 1/2 inch size diskettes, turn the label side up and locate the metal "shutter". Insert the diskette into the drive with the label up and the shutter FIRST into the drive. The write protect notch or opening is a small square hole with a SLIDING PLASTIC TAB which is slid CLOSED (cannot see an open hole) to enable BOTH reading and writing to the diskette. The sliding tab is placed OPEN (visible open hole) to enable reading but NOT writing.

FIXED DISK DRIVE

Usually named disk drive C. It is essentially a very large floppy disk. This Fixed Disk (commonly called a Hard Drive) is secured within the machine and cannot be seen or transported. The storage capacity is so large it is measured in megabytes (1M = 1K squared = 1,048,576 bytes). Fixed Disks are available from 5M on up. The main advantages are that it has enough space to meet most users' total storage needs, operates much faster than a floppy (5-10 times faster), and is less likely to fail since it "lives" within the protected computer.

INPUT DEVICES

Since we have covered data storage lets move to data input.

(a) PRIMARY INPUT DEVICES

Two primary input devices are key to getting data into a PC. The keyboard and the mouse.

(i) KEYBOARD

Input device that lets you enter data into the computer. The layout is similar to the standard QWERTY typewriter keyboard. However, there are many extra special keys that are defined by the software you are running.

(ii) MOUSE

Hand operated pointing and selection device which serves as alternate input to the

keyboard. It is very useful for Graphical User Interface (GUI) Applications such as Windows, etc., which is rolled or moved across the desktop to position a cursor or pointer on the computer screen.

The mouse also contains several buttons to help select items on data on the monitor screen. A mouse was initially an optional device, but it is becoming difficult to work without it, with the spread of Windows based systems.

(b) SPECIALTY INPUT DEVICES

Lets move on to the specialty input devices like the scanner and the Digital camera.

(i) SCANNER

A scanner converts text and images to digital information. This text and images can be from a variety of sources such as magazines, photographs, articles, scientific diagrams, etc. The scanner creates a digital image from your photograph or drawing, for use in graphics, DeskTop Publishing or Presentation applications.

There are different types of scanners like Hand scanner, flatbed scanner and the multifunction scanner/fax/printer/copier. The flatbed scanner provides a larger scanning area than the other scanners and is the usually more expensive.

(ii) DIGITAL CAMERA

The Digital Camera produces the same result as a Scanner. Any pictures taken are transferred straight to the computer, i.e. in the form of a graphics image suitable for image editing or DeskTop Publishing applications. It eliminates the need for film.

OUTPUT DEVICES

Another introductory topic is that of output devices such as a monitor, printer or plotter.

(i) PLOTTER

A plotter is a device which uses a motor to move pens or drawing implements in tightly controlled horizontal and vertical motions on a piece of paper or film. The computer can control a plotter to combine on one piece of paper differing pen colors and text and pictures stored within the computer. Computer plotter can be purchased with flat table or flat bed configurations or in models which move the pen(s) back and forth with gears that also drive the paper movement at the same time.

(ii) PRINTER

The printer is probably the most common and useful output device attached to your computer. There are many types of modern computer printer with differing speeds and capabilities. The most common printer is the Dot matrix printer which provides characters made up from tiny dots of ink on paper. Line printers (usually with Mainframe computers or Minicomputers) print entire lines of text in one sweep then move to the next line and are thus very fast. Ink jet printers produce characters made from individual dots of ink sprayed onto the paper.

The ink jet printer squirts individual dots of ink onto the paper to form letters or other characters. A high quality paper is necessary since the wet ink can smear if not carefully handled. Although with the most recent models, ordinary paper can also be used. The Colour print facility is also now standard with most inkjet printer.

Finally, laser printers use a rapidly scanning laser to sensitize a polished drum with an entire page of information quickly and look and work roughly like an office copier. The first two printers are classified as impact printers since something strikes the paper while

the later two are non impact printers.

The laser and ink jet printers are becoming more popular due to rapid speed of printing and quiet mode of operation.

The laser printer is used for quickly producing one page of text at a time. In operation, the laser scans a polished drum with an image which is then dusted with dark toner particles which stick to the exposed areas made sensitive by the laser. Paper is then placed in contact with the drum and the toner is transferred to the page and is finally fused with heat to "fix" or seal the toner particles to the page.

Of the Microcomputer printers, the Laser is the most expensive in terms of purchase price, maintenance cost and consumable cost.

Dot matrix printers are common and affordable alternatives for many small offices, home computer hobbyists or organizations with voluminous printing requirements (e.g. statements of accounts for banks). The Dot matrix is additionally designed for use with continuous flow paper, as well as typical single sheet paper.

Dot matrix usually operates in varying modes of draft and letter quality. In draft mode, the printer speed is faster, with draft quality. Letter quality is slower with higher quality. Dot matrix printers produce letters via small pins which strike the ink ribbon and paper to produce print which can be jagged looking. Nine pin dot matrix printers produce somewhat rough looking letters while 24 pin dot matrix printers produce crisper, fully-formed letters. The Dot matrix printer strikes the paper through a ribbon to transfer ink to the printed page.

Connecting a printer via a cable to the computer is always done through one of two plugs (or interfaces) on the back of the computer. One type of interface (computer plug) is serial, the other called parallel.

The most commonly used interface for printers today is the parallel interface but serial interface printers do exist. What is the difference? Recall that there are eight bits (computer dots and dashes) to a byte (or computer word). The serial interface has each bit sent one at a time to the printer - like men in single file at the supermarket checkout counter. The parallel interface sends all eight bits at once - like eight men all entering eight supermarket counters at once. Each interface is different, the printer manufacturer will tell you which interface to use, i.e. serial or parallel.

Frequently, modems or mouse devices use the serial interface leaving the printer to the parallel interface.

(iii) MONITORS

We have talked about output to paper, next let's briefly discuss output to a monitor or screen. The monitor is a television like device that the computer uses to communicate with you. The monitor or video display works much like your television - some older home computers still use a TV. An old term for a monitor is the cathode ray tube or CRT. Monitors differ in the sharpness or resolution they can display. On the low end of the resolution spectrum is the monochrome (single color) monitor frequently available in either green or amber screens. Next is the color RGB monitor (RGB stands for Red, Green and Blue) which displays low resolution color dots to make up an image. Higher resolution is obtained with an EGA monitor (Enhanced Graphics Adapter) and still higher with a VGA (Video Graphics Array) Monitor and even higher with an SVGA (Super Video Graphics Array) Monitor.

Each monitor is matched to work with a circuit card located within the body of the computer. One way to upgrade a computer is to switch both the monitor and display/graphics circuit card to produce a sharper, more colorful image. The dots which make up all images on the monitor screen are called pixels. The smaller the pixels, the higher and sharper the image resolution.

Typically the monitor displays 80 columns (characters) by 25 rows (lines) of information. The initial SVGA cards could only display 16 colours. And then 256 colours. Now some SVGA card can display millions of colours.

INPUT & OUTPUT DEVICES

Certain devices can act as both input and output devices to the computer. Typical devices mentioned earlier are the disks (floppy and hard).

(i) MODEM

Short for Modulator/Demodulator. A device to send and receive computer output over telephone lines.

THE COMPUTER DEVICES & RELATIONSHIPS

CASING & MOTHERBOARD

Where is your CPU kept? Don't look for RAM near your mouse. Most of the components are internal, and kept inside a casing. This casing model can be Tower, minitower or desktop. Inside the casing, there is a power supply unit that takes in the power supplied from the public power supply and steps it down to supply the computer's needs. Also inside the casing is the motherboard, which is a large printed circuit board that all expansion boards plug into.

The motherboard contains the most essential parts of the computer such as the CPU, RAM, ROM, keyboard, speaker and power connections, and other assortment of important parts.

The expansion boards contain special circuits for the monitor (monitor card), disk drives and mouse (multi Input/Output card) and other options such as modem and scanner.

SOME SHORT NOTES ON COMPUTER SCIENCE :

Links are also given

1. Hardware (disambiguation).

Hardware is a general term that refers to the physical [artifacts](#) of a [technology](#). It may also mean the physical components of a [computer system](#), in the form of [computer hardware](#).

Hardware historically meant the metal parts and fittings that were used to make wooden products stronger, more functional, longer lasting and easier to fabricate or assemble. In modern usage it includes equipment such as [keys](#), [locks](#), [hinges](#), [latches](#), [corners](#), [handles](#), [wire](#), chains, [plumbing](#) supplies, [tools](#), [utensils](#), [cutlery](#) and [machine](#) parts, especially when they are made of [metal](#). In the [United](#)

[States](#), this type of hardware has been traditionally sold in [hardware stores](#), a term also used to a lesser extent in the [UK](#).

In a more colloquial sense, hardware can refer to major items of [military](#) equipment, such as [tanks](#), [aircraft](#) or [ships](#).

In slang, the term refers to [trophies](#) and other physical representations of [awards](#). Retrieved from "<http://en.wikipedia.org/wiki/Hardware>"

Categories: [Equipment](#)

2. System software

System software is any [computer software](#) which manages and controls [computer hardware](#) so that [application software](#) can perform a task. [Operating systems](#), such as [Microsoft Windows](#), [Mac OS X](#) or [Linux](#), are prominent examples of system software. System software contrasts with application software, which are programs that enable the end-user to perform specific, productive tasks, such as [word processing](#) or [image manipulation](#).

System software performs tasks like transferring [data](#) from [memory](#) to [disk](#), or rendering text onto a [display device](#). Specific kinds of system software include [loading programs](#), [Operating systems](#), [device drivers](#), [programming tools](#), [compilers](#), [assemblers](#), [linkers](#), and [utility software](#).

[Software libraries](#) that perform generic functions also tend to be regarded as system software, although the dividing line is fuzzy; while a [C runtime library](#) is generally agreed to be part of the system, an [OpenGL](#) or [database](#) library is less obviously so.

If system software is stored on [non-volatile memory](#) such as [integrated circuits](#), it is usually termed [firmware](#).

3. Computer software

Computer software is a general term used to describe a collection of [computer programs](#), [procedures](#) and documentation that perform some tasks on a computer system. The term includes [application software](#) such as [word processors](#) which perform productive tasks for users, [system software](#) such as [operating systems](#), which interface with [hardware](#) to provide the necessary services for application software, and [middleware](#) which controls and co-ordinates [distributed systems](#).

"Software" is sometimes used in a broader context to mean anything which is not hardware but which is *used* with hardware, such as film, tapes and records.

Relationship to computer hardware

Main article: [Computer hardware](#)

[Computer](#) software is so called to distinguish it from [computer hardware](#), which encompasses the physical interconnections and devices required to store and execute (or run) the software. In computers, software is loaded into [RAM](#) and executed in the [central processing unit](#). At the lowest level, software consists of a [machine language](#) specific to an individual processor. A machine language consists of groups of binary values signifying processor instructions which change the state of the computer from its preceding state. Software is an ordered sequence of instructions for changing the state of the computer hardware in a particular sequence. It is usually written in [high-level programming languages](#) that are easier and more efficient for humans to use (closer to [natural language](#)) than machine language. High-level languages are [compiled](#) or [interpreted](#) into machine language object code. Software may also be written in an [assembly language](#), essentially, a mnemonic representation of a machine language using a natural language alphabet. Assembly language must be assembled into object code via an [assembler](#).

The term "software" was first used in this sense by [John W. Tukey](#) in 1958.^[3] In [computer science](#) and [software engineering](#), **computer software** is all computer programs. The theory that is the basis for most modern software was first proposed by [Alan Turing](#) in his 1935 essay *Computable numbers with an application to the Entscheidungsproblem*.

4. Keyboard (computing)

The 104-key PC [US English QWERTY](#) keyboard layout evolved from the standard [typewriter](#) keyboard with extra keys special to computing.

The [Dvorak Simplified Keyboard](#) layout arranges keys so that frequently used keys are easiest to press. Advocates of this keyboard layout claim that it reduces muscle fatigue when typing common English.

partially modeled after the [typewriter keyboard](#).

Physically, a keyboard is an arrangement of buttons, or [keys](#). A keyboard typically has characters [engraved](#) or [printed](#) on the keys; in most cases, each press of a key corresponds to a single written [symbol](#). However, to produce some symbols requires pressing and

holding several keys simultaneously or in sequence; other keys do not produce any symbol, but instead affect the operation of the computer or the keyboard itself. See [input method editor](#).

A majority of all keyboard keys produce [letters](#), [numbers](#) or [signs \(characters\)](#) that are appropriate for the operator's [language](#). Other keys can produce actions when pressed, and other actions are available by the simultaneous pressing of more than one action key.

5. Mouse (computing)

.A [contemporary](#) computer mouse, with the most common standard features: two buttons and a scroll wheel.

In [computing](#), a **mouse** (plural **mice**, **mouse devices**, or **mouses**) is a [pointing device](#) that functions by detecting [two-dimensional](#) motion relative to its supporting surface. Physically, a mouse consists of a small case, held under one of the user's hands, with one or more buttons. It sometimes features other elements, such as "wheels", which allow the user to perform various system-dependent operations, or extra buttons or features can add more control or dimensional input. The mouse's motion typically translates into the motion of a [pointer](#) on a [display](#), which allows for fine control of a [Graphical User Interface](#).

The name *mouse*, originated at the [Stanford Research Institute](#), derives from the resemblance of early models (which had a cord attached to the rear part of the device, suggesting the idea of a tail) to the common [mouse](#).^[1]

The first marketed integrated mouse “ shipped as a part of a computer and intended for personal computer navigation “ came with the [Xerox 8010 Star Information System](#) in 1981.

6. Input/output

I/O, **I/O device**, **I/O interface**, **Read/write channel**, and **Transput** all redirect here. For the use of the term **input-output** in economics, see [Input-output model](#). For other uses of the term **I/O**, see [I/O \(disambiguation\)](#).

In [computing](#), **input/output**, or **I/O**, refers to the communication between an [information processing system](#) (such as a [computer](#)), and the outside world “ possibly a human, or another information processing system. [Inputs](#) are the signals or data received by the system, and [outputs](#) are the signals or data sent from it. The term can also be used as part of an action; to "perform I/O" is to perform an [input or output operation](#). I/O devices are used by a person (or other system) to communicate with a computer. For instance, [keyboards](#) and [mouses](#) are considered input devices of a computer, while [monitors](#) and [printers](#) are considered output devices of a computer. Devices for communication between computers, such as [modems](#) and [network cards](#), typically serve for both input and output.

Note that the designation of a device as either input or output depends on the perspective. Mouses and keyboards take as input physical movement that the human user outputs and convert it into signals that a computer can understand. The output from these devices is input for the computer. Similarly, printers and monitors take as input signals that a computer outputs. They then convert these signals into representations that human users can see or read. (For a human user the process of reading or seeing these representations is receiving input.)

In computer architecture, the combination of the [CPU](#) and [main memory](#) (i.e. memory that the CPU can read and write to directly, with individual [instructions](#)) is considered the heart of a computer, and from that point of view any transfer of information from or to that combination, for example to or from a [disk drive](#), is considered I/O. The CPU and its supporting circuitry provide [memory-mapped I/O](#) that is used in low-level [computer programming](#) in the implementation of [device drivers](#).

Higher-level [operating system](#) and programming facilities employ separate, more abstract I/O concepts and [primitives](#). For example, most operating systems provide application programs with the concept of [files](#). The [C](#) and [C++](#) programming languages, and operating systems in the [Unix](#) family, traditionally abstract files and devices as [streams](#), which can be read or written, or sometimes both. The [C standard library](#) provides [functions for manipulating streams](#) for input and output.

7. Central processing unit

Jump to: [navigation](#), [search](#)

"CPU" redirects here. For other uses, see [CPU \(disambiguation\)](#).

[Die](#) of an [Intel 80486DX2](#) microprocessor (actual size: $12\sqrt{6.75}\text{ mm}$) in its packaging.

A **Central Processing Unit (CPU)**, or sometimes just called **processor**, is a description of a class of logic machines that can execute [computer programs](#). This broad definition can easily be applied to many early computers that existed long before the term "CPU" ever came into widespread usage. The term itself and its initialism have been in use in the computer industry at least since the early 1960s ([Weik 1961](#)). The form, design and implementation of CPUs have changed dramatically since the earliest examples, but their fundamental operation has remained much the same.

Early CPUs were custom-designed as a part of a larger, usually one-of-a-kind, computer. However, this costly method of designing custom CPUs for a particular application has largely given way to the development of mass-produced processors that are suited for one or many purposes. This standardization trend generally began in the era of discrete [transistor mainframes](#) and [minicomputers](#) and has rapidly accelerated with the popularization of the [integrated circuit](#) (IC). The IC has allowed increasingly complex CPUs to be designed and manufactured in very small spaces (on the order of

[millimeters](#)). Both the miniaturization and standardization of CPUs have increased the presence of these digital devices in modern life far beyond the limited application of dedicated computing machines. Modern microprocessors appear in everything from [automobiles](#) to [cell phones](#) to children's toys.

8. Computer data storage

160 GB [SDLT](#) tape cartridge, an example of *off-line* storage. When used within a robotic [tape library](#), it is classified as *tertiary* storage instead.

Computer data storage, often called **storage** or **memory**, refers to [computer](#) components, devices, and [recording media](#) that retain digital [data](#) used for computing for some interval of time. Computer data storage provides one of the core functions of the modern computer, that of information retention. It is one of the fundamental components of all modern computers, and coupled with a [central processing unit](#) (CPU, a processor), implements the basic computer model used since the 1940s.

In contemporary usage, *memory* usually refers to a form of [semiconductor](#) storage known as [random access memory](#) (RAM) and sometimes other forms of fast but temporary storage. Similarly, *storage* today more commonly refers to [mass storage](#) - [optical discs](#), forms of [magnetic storage](#) like [hard disks](#), and other types slower than RAM, but of a more permanent nature. Historically, *memory* and *storage* were respectively called *primary storage* and *secondary storage*.

The contemporary distinctions are helpful, because they are also fundamental to the architecture of computers in general. As well, they reflect an important and significant technical difference between memory and mass storage devices, which has been blurred by the historical usage of the term *storage*. Nevertheless, this article uses the traditional nomenclature.

9. PC Memory Units - Noun1.computer memory unit - a unit for measuring computer memory

[unit](#), [unit of measurement](#) - any division of quantity accepted as a standard of measurement or exchange; "the dollar is the United States unit of currency"; "a unit of wheat is a bushel"; "change per unit volume"

[byte](#) - a sequence of 8 bits (enough to represent one character of alphanumeric data) processed as a single unit of information

[sector](#) - the minimum track length that can be assigned to store information; unless otherwise specified a sector of data consists of 512 bytes

[block](#) - (computer science) a sector or group of sectors that function as the smallest data unit permitted; "since blocks are often defined as a single sector, the terms 'block' and 'sector' are sometimes used interchangeably"

[allocation unit](#) - a group of sectors on a magnetic disk that can be reserved for the use of a particular file

[partition](#) - (computer science) the part of a hard disk that is dedicated to a particular operating system or application and accessed as a single unit

[word](#) - a word is a string of bits stored in computer memory; "large computers use words up to 64 bits long"

[KiB](#), [kibibyte](#), [kilobyte](#), [kB](#), [K](#) - a unit of information equal to 1024 bytes

[kilobyte](#), [kB](#), [K](#) - a unit of information equal to 1000 bytes

[kb](#), [kbit](#), [kilobit](#) - a unit of information equal to 1000 bits

[kibibit](#), [kibit](#) - a unit of information equal to 1024 bits

[mebibyte](#), [MiB](#), [megabyte](#), [MB](#), [M](#) - a unit of information equal to 1024 kibibytes or 2^{20} (1,048,576) bytes

[megabyte](#), [MB](#), [M](#) - a unit of information equal to 1000 kilobytes or 10^6 (1,000,000) bytes

[Mb](#), [Mbit](#), [megabit](#) - a unit of information equal to 1000 kilobits or 10^6 (1,000,000) bits

[mebibit](#), [Mibit](#) - a unit of information equal to 1024 kibibits or 2^{20} (1,048,576) bits

[GiB](#), [gibibyte](#), [gigabyte](#), [GB](#), [G](#) - a unit of information equal to 1024 mebibytes or 2^{30} (1,073,741,824) bytes

[gigabyte](#), [GB](#), [G](#) - a unit of information equal to 1000 megabytes or 10^9 (1,000,000,000) bytes

[Gbit](#), [gigabit](#), [Gb](#) - a unit of information equal to 1000 megabits or 10^9 (1,000,000,000) bits

[gibibit](#), [Gibit](#) - a unit of information equal to 1024 mebibits or 2^{30} (1,073,741,824) bits

[tebibyte](#), [TiB](#), [terabyte](#), [TB](#) - a unit of information equal to 1024 gibibytes or 2^{40} (1,099,511,627,776) bytes

[terabyte](#), [TB](#) - a unit of information equal to 1000 gigabytes or 10^{12} (1,000,000,000,000) bytes

10. User (computing)

Users in a [computing](#) context refers to one who uses a computer system. Users may need to identify themselves for the purposes of accounting, security, logging and resource management. In order to identify oneself, a user has an **account** (a **user account**) and a **username**, and in most cases also a [password](#) (see below). Users employ the [user interface](#) to access systems.

Users are also widely characterized as the class of people that uses a system without complete technical expertise required to fully understand the system. In most [hacker](#)-related contexts, they are also divided into [lusers](#) and [power users](#). See also [End-user \(computer science\)](#).

Screen names (also called a **handle**, **nickname**, or **nick** on some systems) refer to a public name that can be used to 'screen' one's true user name from the public eye. Services such as AOL allowed customers to have multiple screen names per user name, and [IRC](#) nicks are independent of one's system account username.

For instance, one can be a user of (and have an account on) a [computer system](#), a [computer network](#) and have an [e-mail](#) account, an [IM](#) account and use one or more nicks on IRC.

INFORMATION AND COMMUNICATION TECHNOLOGY

COMMUNICATION: Introduction

Communication is an indispensable tool in all areas of human interaction. But it is a process that is complex. The extent of its complexity can be seen in the variety of ways in which it can be defined. Thus, communication is any behavior, verbal, nonverbal or graphic that is perceived by another. It involves a web of activities that differ in different situations. In the workplace, for example, you would probably communicate differently when talking formally to customers as compared to informally with a peer. How you perceive the situation will often determine your communication behavior.

FORMS AND TYPES OF COMMUNICATION

People communicate with each other in a variety of ways that depend on the message they want to send and the context in which it is to be sent. As a result there are a variety of forms and types of communication such as e-mail, face-to-face, telephone, meetings, corridor conversations and seminars. Dwyer categorizes these into

Three forms of communication - verbal, nonverbal and graphic

Four types of communication - intrapersonal, interpersonal, public and mass.

COMMUNICATION MODELS AND THEORIES

'Communication is a dynamic and interactive process'. Just as there are many definitions

of communication, so there are many models of communication, each providing different views of how people transfer and interpret information. Like a jigsaw puzzle, each model provides a part of the picture, but no one model seems to cover all aspects.

BERLO'S MODEL

Berlo's focus remained on the transmission model of communication. However, he introduced more of the human elements, such as the relationship between the message channel and the five senses. Effective communication involves both the sender and the receiver. The sender must be as clear as possible and the receiver must signal understanding or clarification. It involves both content and relationship elements

Content = message, idea

relationship = emotions, power, status

personal Encoding and decoding are based on a person's perception of the world.

THE TRANSMISSION MODEL

The transmission model is concerned with the transfer of meaning from the sender to the receiver. Communication is a one way process.

THE PROCESS MODEL

The transmission model was subsequently adapted to form the process models in which people transmit, receive, interpret and respond to messages with feedback. The process models have seven main elements:

Sender

Message

Receiver

Feedback

Channel

Context or setting (environment)

Noise or interference

in the process models, a message is encoded by the sender through a communication channel, such as voice or body language, and then decoded by the receiver. The receiver then provides feedback. The process is influenced by the context of the situation and any noise or interference.

NOTES ON COMMUNICATION: Continued

COMMUNICATION BARRIERS

Ineffective communication can lead to errors, misunderstanding, poor performance, lower

motivation and morale, negative feelings in the workplace and many other issues that may detract from achieving organizational goals. It is, therefore, important to try to minimize barriers to effective and efficient communication: communication barriers distort or interrupt the message and its meaning

ORGANIZATIONAL COMMUNICATION

Communication in an organization may be used to influence, inform, control or inspire. Organizational communication can be divided into two broad categories - formal or structured (within the 'systems' established by management) and informal (as when co-workers chat about company matters). Both areas are significant and both need to be 'healthy' for the organization to be healthy.

FORMAL COMMUNICATION CHANNELS AND NETWORKS

Formal communication channels follow the organizational structure or hierarchy and flow in four directions:

These four directions in which communication can travel are: downward; upward; lateral or horizontal; and diagonal.

Downward (1) communication involves communication from higher to lower levels so that leadership can communicate goals, strategies or role expectations.

Upward (2) communication flows from lower levels to higher levels of the organization, for example, when there is a need to communicate problems, results or suggestions.

Horizontal (3) communication occurs across the same level and involves for example, coordination of activities with peers (teams, committees), dissemination of useful information from one department to another (for example sales forecasts from the sales department to production, and problems such as a problem with product design from the production department to research and development). Horizontal communication facilitates the linking of different areas of expertise and this may encourage innovation.

Diagonal (4) channels may potentially cause conflict as they involve communication between the lower level of one department to a higher level in another. In the diagram above, this may cause friction between the employee in accounting department C and the Vice-President (VP) of Accounting as the employee has gone around his or her own superior. Nevertheless this type of communication may be useful as it may simply be information relevant to the Marketing Department and the VP Accounting does not need to be involved.

Formal communication networks also occur within the hierarchy of the organization and reflect how groups of employees, for example those in a department, work together. Networking or mapping the flow of communication in an organization can be a useful device. This can identify who is communicating with whom and whether the lines of communication are effective and efficient, or whether there is potential for destructive

conflict or tension arising from the communication channels (for example, inappropriate diagonal communication).

FORMAL COMMUNICATION: PROBLEMS AND SOLUTIONS.

Many communication problems arise from the structure of the organization. Dwyer mentions three related organizational factors: centralization; the creation of too many organizational layers; and the structure of the organization. Other factors may include downsizing which leads to ambiguous reporting structure and poor leadership. Many of these problems may be overcome by:

analyzing the organization structure and communication networks for barriers to effectiveness and efficiency ensuring downsizing is well planned and the 'survivors' (those left in the organization) understand the impact of the process on communication networks and procedures recruiting for competent communication, particularly when recruiting for leadership roles.

INFORMAL COMMUNICATION

Informal organizational communication exists outside the formal lines of the organizational structure. An example of this is friendship groups. The informal communication channel serves two main purposes: it permits employees to satisfy their need for social interaction in the workplace and it can improve an organization's performance by creating alternative, and frequently faster and more efficient, channels of communication (Robbins et al. 2000).

One of the most common forms of informal communication is 'the grapevine'. According to Kreitner and Kinicki (1995) the term grapevine originated from the American Civil War practice of stringing battlefield telegraph lines between trees as a means of efficient communication. Now it supplements the formal channels of communication.

RESEARCH APTITUDE

Types of Research - Definitions

Action research is a methodology that combines action and research to examine specific questions, issues or phenomena through observation and reflection, and deliberate intervention to improve practice.

Applied research is research undertaken to solve practical problems rather than to acquire knowledge for knowledge sake.

Basic research is experimental and theoretical work undertaken to acquire new knowledge without looking for long-term benefits other than the advancement of knowledge.

Qualitative research is research undertaken to gain insights concerning attitudes, beliefs, motivations and behaviors of individuals to explore a social or human problem and include methods such as focus groups, in-depth interviews, observation research and case studies.

Quantitative research is research concerned with the measurement of attitudes, behaviors and perceptions and includes interviewing methods such as telephone, intercept and door-to-door interviews as well as self-completion methods such as mail outs and online surveys.

Three basic types of questions that research projects:

Descriptive. When a study is designed primarily to describe what is going on or what exists. Public opinion polls that seek only to describe the proportion of people who hold various opinions are primarily descriptive in nature. For instance, if we want to know what percent of the population would vote for a BJP or Congress in the next election, we are simply interested in describing something.

Relational. When a study is designed to look at the relationships between two or more variables. A public opinion poll that compares what proportion of males and females say they would vote for a BJP or Congress candidate in the next election is essentially studying the relationship between gender and voting preference.

Causal. When a study is designed to determine whether one or more variables (e.g., a program or treatment variable) causes or affects one or more outcome variables. If we did a public opinion poll to try to determine whether a recent political advertising campaign changed voter preferences, we would essentially be studying whether the campaign (cause) changed the proportion of voters who would vote BJP or Congress (effect).

Time is an important element of any research design. The most fundamental distinctions in research design nomenclature: cross-sectional versus longitudinal studies. A cross-sectional study is one that takes place at a single point in time. In effect, we are taking a 'slice' or cross-section of whatever it is we're observing or measuring. A longitudinal study is one that takes place over time -- we have at least two (and often more) waves of measurement in a longitudinal design.

A **variable** is any entity that can take on different values. Anything that can vary can be considered a variable. For instance, age can be considered a variable because age can take different values for different people or for the same person at different times. Similarly, country can be considered a variable because a person's country can be assigned a value.

There is a distinction between an **independent and dependent variable**. In fact the independent variable is what you (or nature) manipulates -- a treatment or program or cause. The dependent variable is what is affected by the independent variable -- your effects or outcomes. For example, if you are studying the effects of a new educational program on student achievement, the program is the independent variable and your

measures of achievement are the dependent ones.

A **hypothesis** is a specific statement of prediction. It describes in concrete (rather than theoretical) terms what you expect will happen in your study. Not all studies have hypotheses. Sometimes a study is designed to be exploratory.

RESEARCH APTITUDE

SAMPLING: Sampling is the process of selecting units (e.g., people) from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. A response is a specific measurement value that a sampling unit supplies. If you measure the entire population and calculate a value like a mean or average, it is called parameter of the population. The distribution of an infinite number of samples of the same size as the sample in your study is known as the sampling distribution.

In sampling contexts, the standard error is called sampling error. Sampling error gives us some idea of the precision of our statistical estimate. A low sampling error means that we had relatively less variability or range in the sampling distribution. How do we calculate sampling error? on the standard deviation of our sample. The greater the sample standard deviation, the greater the standard error /the sampling error. The standard error is also related to the sample size. The greater your sample size, the smaller the standard error. Because the greater the sample size, the closer your sample is to the actual population itself. If you take a sample that consists of the entire population you actually have no sampling error because you don't have a sample, you have the entire population. In that case, the mean you estimate is the parameter.

Probability sampling method is any method of sampling that utilizes some form of random selection such as picking a name out of a hat, or choosing the short straw.

The simplest form of random sampling is called simple random sampling. Simple random sampling is simple to accomplish and is easy to explain to others. Because simple random sampling is a fair way to select a sample, it is reasonable to generalize the results from the sample back to the population. Simple random sampling is not the most statistically efficient method of sampling and you may, just because of the luck of the draw, not get good representation of subgroups in a population.

Stratified Random Sampling, also sometimes called proportional or quota random sampling, involves dividing your population into homogeneous subgroups and then taking a simple random sample in each subgroup. It assures that you will be able to represent not only the overall population, but also key subgroups of the population, especially small minority groups. Second, stratified random sampling will generally have more statistical precision than simple random sampling. This will only be true if the strata or groups are homogeneous.

The problem with random sampling methods when we have to sample a population that's

disbursed across a wide geographic region is that you will have to cover a lot of ground geographically in order to get to each of the units you sampled. It is for precisely this problem that cluster or area random sampling was invented. In cluster sampling, we follow these steps:

1. divide population into clusters (usually along geographic boundaries).
2. Randomly sample clusters.
3. Measure all units within sampled clusters.

Non-probability sampling. The difference between nonprobability and probability sampling is that nonprobability sampling does not involve random selection and probability sampling does. We can divide nonprobability sampling methods into two broad types: accidental or purposive. In accidental sampling, sample is chosen accidentally and we have no evidence that they are representative of the populations we're interested in generalizing to and in many cases we would clearly suspect that they are not. e.g. college students in some psychological survey. In purposive sampling, we sample with a purpose in mind. We usually would have one or more specific predefined groups we are seeking. For instance, have you ever run into people in a mall or on the street who are carrying a clipboard and who are stopping various people and asking if they could interview them? Most likely they are conducting a purposive sample. Purposive sampling can be very useful for situations where you need to reach a targeted sample quickly and where sampling for proportionality is not the primary concern. With a purposive sample, you are likely to get the opinions of your target population, but you are also likely to overweight subgroups in your population that are more readily accessible.

One of purposive sampling is quota sampling. In quota sampling, you select people nonrandomly according to some fixed quota. There are two types of quota sampling: proportional and non proportional. In proportional quota sampling you want to represent the major characteristics of the population by sampling a proportional amount of each. e.g. getting 40% females from a population of say 1000.

Then there is snowball sampling. In snowball sampling, you begin by identifying someone who meets the criteria for inclusion in your study. You then ask them to recommend others who they may know who also meet the criteria.

RESEARCH DESIGN

Research design provides the glue that holds the research project together. A design is used to structure the research, to show how all of the major parts of the research project the samples or groups, measures, treatments or programs, and methods of assignment work together to try to address the central research questions. Design can be either experimental or non-experimental.

Data analysis is the last part of the research. In most social research the data analysis involves three major steps, done in roughly this order:

Cleaning and organizing the data for analysis (Data Preparation)

Describing the data (Descriptive Statistics)
Testing Hypotheses and Models (Inferential Statistics)

Data Preparation involves checking or logging the data in; checking the data for accuracy; entering the data into the computer; transforming the data; and developing and documenting a database structure that integrates the various measures.

Descriptive Statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. With descriptive statistics you are simply describing what is, what the data shows. Inferential Statistics investigate questions, models and hypotheses. In many cases, the conclusions from inferential statistics extend beyond the immediate data alone. For instance, we use inferential statistics to try to infer from the sample data what the population thinks. Or, we use inferential statistics to make judgments of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study. Thus, we use inferential statistics to make inferences from our data to more general conditions; we use descriptive statistics simply to describe what's going on in our data.