

Reading Selection 5.1

Lesson No. 13

Technology and Society of the Future

ٹیکنالوجی اور مستقبل کا معاشرہ

The 21th century is the century of sophisticated technology and science.

Technology and science began to make progress in the seventeenth century.

اکیسویں صدی جدید اعلیٰ ٹیکنالوجی اور سائنس کی صدی ہے۔ سائنس اور ٹیکنالوجی نے سترویں صدی میں ترقی حاصل کرنا شروع کی۔

Since then technology and science have been making progress by leaps and bounds. New Inventions and discoveries in the numerous fields have brought a revolution in the life of human beings.

تب سے ہی سائنس اور ٹیکنالوجی دن دگنی رات چلکنی ترقی کر رہی ہے۔ بہت سے شعبوں میں نئی نئی ایجادات اور دریافتوں نے انسانی زندگی میں انقلاب برپا کر دیا ہے۔

The benefits got from science and its applications are enormous and probably it is not possible to enumerate these, however, it is beyond doubt that science has helped a great deal in developing self-confidence, self-esteem and courage in human beings. Now owing to scientific and technological advances, man is not at the mercy of his environment but he has the capability to control and modify it to suit his needs and requirements.

سائنس حاصل ہونے والے فائدے اور اس کے استعمالات بہت زیادہ ہیں اور شاید ان کا شمار ممکن نہیں ہے۔ تاہم اس میں کوئی شک نہیں کہ سائنس انسانوں میں خود اعتمادی، خود بینی اور حوصلہ کو پروان چڑھانے میں کافی مدد کی ہے۔ اب سائنسی اور تکنیکی ترقی کی وجہ سے انسان اپنے ماحول کے رحم و کرم پر نہیں ہے بلکہ انسانوں میں یہ صلاحیت موجود ہے کہ ماحول کو کنٹرول کر کے اپنی اسے ضروریات کے مطابق ڈھالنے کی صلاحیت موجود ہے۔

Previously people believed in superstitions and in certain supernatural forces for the control of their future. People also used to believe in magic and fortune telling. By adopting scientific methods, human beings are now more confident to handle their environmental conditions. Human beings no more attribute the weather conditions or disaster to supernatural, bad or evil forces. They think independently, logically and scientifically.

ماضی میں لوگ مستقبل پر قابو پانے کے لیے توہمات اور بعض مافوق الفطری قوتوں پر یقین رکھتے تھے۔ لوگ جادو اور قسمت کا حال بتانے پر یقین رکھتے تھے۔ سائنسی طریقے اختیار کرنے سے انسان اب ماحولیاتی حالات سے نمٹنے کے لیے زیادہ پر اعتماد بن گئے ہیں۔ انسان اور موسمی حالات کی آفت کو مافوق الفطری بری قوتوں سے منسوب نہیں کرتے۔ وہ آزادانہ، منطقی اور سائنسی انداز سے سوچتے ہیں۔

Before the discovery and development of modern medicines, scientific equipments and instruments of surgery, thousands of people used to die of diseases. The great plague which started in 542 AD was responsible for 95 million deaths in 50 years. The Black Death (plague) of fourteenth Century wiped out one-third of the whole population of the world. The pandemic of 1898-1918 caused ten million deaths in India.

جدید ادویات، سائنسی آلات اور آلات جراحی کی دریافت ترقی سے پہلے ہزاروں لوگ بیماریوں سے مر جاتے تھے۔ طاعون کی بیماری جو 542 بعد مسیح کو شروع ہوئی، 50 سال میں 95 ملین لوگوں کی اموات کی ذمہ دار تھی۔ چودھویں صدی کی کالی موت (طاعون) نے دنیا کی آبادی کے ایک تہائی حصے کا صاف صفایا کر دیا۔ 1898 تا 1918 کی وبا کی وجہ سے ہندوستان میں دس ملین اموات واقع ہوئیں۔

The influenza pandemic of 1957 killed 8,000 people in the USA only. Millions of people used to die over the battlefields as a result of septic wounds because no antibiotic and antiseptic were available.

1957 میں انفلونزیا کی وبا صرف امریکہ میں آٹھ ہزار لوگوں کی جان لے لی، لاکھوں لوگ میدان جنگ میں جراثیم زدہ زخموں کی وجہ سے مر جاتے تھے کیونکہ کوئی بھی اینٹی بائیوٹیک جراثیم کش ادویات دستیاب نہ تھی۔

Now with the discovery of various medicines and revolution in surgery, smallpox is eradicated from the world. Malaria is controlled and very few people die of plague, typhoid and cholera. The discovery of Penicillin by Alexander Fleming in 1927 revolutionized the treatment of infections and infectious diseases. Some other discoveries have contributed as much as that of Penicillin (and the antibiotics that followed) to the health and welfare of people worldwide.

اب مختلف قسم کی ادویات کی دریافت جراحی کے میدان میں انقلاب برپا ہونے سے دنیا سے چھچک کی بیماری کا خاتمہ ہوا، ملیریا پر قابو پایا گیا اور بہت کم لوگ طاعون، ٹائیفائیڈ، مہیضے جیسے مرتے ہیں۔ 1927 میں الیکزینڈر فلمینگ کی ہینسلین کی دریافت نے انفیکشن سے پھیلنے والی بیماریوں کے علاج میں انقلاب برپا کر دیا۔ کچھ اور دریافتوں نے ہینسلین ہی کی طرح دنیا بھر کے لوگوں کی فلاح اور صحت میں بہت بڑا کردار ادا کیا۔

Engineering and mechanical technologies have been playing vital role in many fields. Before the inventions of automobiles, aeroplanes, rockets and steam engines, people used to travel on foot or used animals or animal driven carts to travel from one place to another. The speed was terribly slow as compared with that of today's travel. Human beings had to tolerate hardships and sufferings of the olden day travels. It took Marco Polo, his father and his uncle, Maffeo Polo, three years to reach China from Venice (Italy).

انجینئرنگ اور مکینیکل ٹیکنالوجی بہت سے شعبوں میں کلیدی کردار ادا کر رہی ہے۔ گاڑیوں، ہوائی جہازوں، راکٹ اور بھاپ سے چلنے والے انجن کی ایجاد سے پہلے لوگ ہیدل سفر کیا کرتے تھے اور جانور استعمال کرتے تھے یا ایک جگہ سے دوسری جگہ سفر کرنے کے لئے چھکڑے استعمال کیا کرتے تھے۔ آج کے سفر کے مقابلے میں ان کی رفتار بہت آہستہ تھی۔ انسانوں کو قدیم زمانے کے سفروں کی تکالیف اور مصائب برداشت کرنے پڑتے تھے۔ مارکوپولو، اس کے باپ اور اس کے چچا، میفیوپولو کووینس سے چین تک پہنچنے میں تین سال لگے۔

Many people died during the journey. But at present, the means of transportation have squeezed the distances, overcome the forces of gravity and made possible the exploration of the outer space. Man has reached the moon and is trying to reach other planets. Never was the world so completely integrated or reachable as it is today. Only in a few hours one can fly around the world or travel from one continent to another. Modern net-workings of roads have really revolutionized the world and the day to day activities.

دوران سفر بہت سے لوگ مرتے تھے لیکن موجودہ زمانے میں ذرائع آمد و رفت نے فاصلوں کو گھٹایا ہے۔ کشش ثقل پر قابو پایا ہے اور بیرونی خلا کو دریافت کرنے کو ممکن بنایا ہے۔ انسان چاند پر پہنچ گیا ہے اور دوسرے سیاروں پر پہنچنے کی کوشش کر رہا ہے۔ دنیا آج جتنی مضبوط یا قابل رسائی ہے پہلے کبھی ایسا نہ تھا۔ کوئی چند گھنٹوں میں دنیا کے گرداڑ سکتا ہے یا ایک براعظم سے دوسرے تک سفر کر سکتا ہے۔ سڑکوں کے جدید جال نے سچ مچ دنیا اور روزمرہ کی سرگرمیوں میں انقلاب برپا کر دیا ہے۔

Communication technology has brought a tremendous revolution in modern societies. A few scores years back it was very difficult for the people of a country to get news, letters, information and knowledge from other countries. A large number of people of the world were living in isolation. Now owing to efficient media and quick means of communication, all the nations are constantly in close contact with one another. A series of inventions like telegraph, telephone, radio, television, print media, communication, satellite, electronic mail and Internet (information technology) have really converted the world into a global village or a global apartment.

خبر رسانی کی ٹیکنالوجی نے جدید معاشروں میں بہت ہی بڑا انقلاب برپا کیا ہے۔ کچھ سال پہلے کسی ایک ملک کے لوگوں کے لیے دوسرے ملکوں سے خبریں، خطوط، معلومات اور علم حاصل کرنا بہت زیادہ مشکل تھا۔ دنیا کے لوگوں کی ایک بڑی تعداد تنہا زندگی گزار رہی تھی۔ اب موثر ذرائع ابلاغ اور پیغام رسانی کے تیز ذرائع کی وجہ سے تمام اقوام ایک دوسرے کے ساتھ مسلسل رابطے میں ہیں۔ بہت سی ایجادات مثلاً ٹیلی گراف، ٹیلی ویژن، ریڈیو، پرنٹ میڈیا، خبر رسانی، سینٹیلٹ، برقی میل اور انٹرنیٹ نے درحقیقت دنیا کو ایک عالمگیر گاؤں یا عالمگیر پارٹنمنٹ میں تبدیل کر دیا ہے۔

Modern technology is playing a central role in the field of agriculture. It has greatly helped man in developing agriculture, livestock and food industry. It has helped man to bring barren and arid lands under the plough. It has helped man to construct dams for irrigation and generation of electricity. It has enabled the agriculturists to increase their yield per acre. It has helped the farmers to grow bumper crops by using chemical fertilizers.

جدید ٹیکنالوجی زراعت کے میدان میں ایک مرکزی کردار ادا کر رہی ہے۔ اس نے زراعت، مال مویشی اور خوراک کی صنعت کو ترقی دینے میں انسان کی بڑی مدد کی ہے۔ اس نے بنجر اور غیر آباد زمینوں کو زیر کاشت لانے میں انسان کی مدد کی ہے۔ اس نے ڈیم بنانا اور بجلی پیدا کرنے میں انسان کی مدد کی ہے۔ اس نے فی ایکڑ پیداوار بڑھانے اور ماہرین زراعت کی مدد کی ہے۔ اس نے کاشتکاروں کو مدد دی ہے تاکہ زمین میں کیمیائی کھادوں کے استعمال کے ذریعے کثرت سے فصلیں اگائیں۔

A few out of these vast varieties of contributions are good quality seeds, better varieties of crops, pesticides, more milk producing and processing and the preservation of food. The farmers with the help of modern technology are now able to produce vegetables and fruit out of season.

اچھے معیار کے بیج، بہتر اقسام کی فصلیں، کیڑے مار ادویات، زیادہ دودھ کی پیداوار اور خوراک کی حفاظت اس کے بہت سے کرداروں میں سے چند ہیں۔ جدید ٹیکنالوجی کی مدد سے کاشتکار اب اس قابل ہو گئے ہیں کہ وہ موسم کے بغیر بھی سبزیاں اور پھل پیدا کریں۔

Technology and science have, altogether, changed the standard of living. Man's standard of living has been uplifted to a great extent. He is enjoying the comforts or luxuries of life. These benefits and comforts include comfortable and air-conditioned houses, hot and cold water, gas, electricity, speedy cars, television, refrigerators and many others. Man has changed his environment. The world has now become a happy abode for living.

ٹیکنالوجی اور سائنس نے معیار زندگی کو یکسر تبدیل کر دیا ہے۔ انسان کی معیار زندگی بڑی حد تک بلند ہوا ہے۔ وہ اب زندگی کے آسائشیں اور سہولیات سے لطف اٹھا رہا ہے۔ ان فائدوں اور آسائشوں میں آرام دہ اور اینرکنڈیشنڈ گھر، گرم اور ٹھنڈا پانی کیس، بجلی، تیز رفتار گاڑیاں، فریج، ٹیلی ویژن، اور بہت سی دوسری چیزیں شامل ہیں۔ انسان نے اپنے ماحول کو تبدیل کر دیا ہے۔ دنیا اب رہنے کے لیے بہترین جگہ بن گئی ہے۔

Man has been harnessing the forces of nature continuously. New inventions are made and new facts are being discovered. Scientists are busy in making researches in the fields of medicines, engineering and space technology. They are trying to create an environment free of pollution.

انسان مسلسل فطرت کی قوتوں کو لگام دے رہا ہے۔ نئی ایجادات کی جارہی ہیں انہی حقائق دریافت کیے جا رہے ہیں۔ سائنسدان ادویات، انجینئرنگ اور خلائی ٹیکنالوجی کے شعبوں میں تحقیق میں مصروف ہیں۔ وہ ایک ایسا ماحول تخلیق کرنے کی کوشش کر رہے ہیں جو آلودگی سے پاک ہو۔

Their focus is on the solar energy which is safe, powerful and inexhaustible. Besides, they are thinking to use atom for peace. If this goal is achieved, there will be no load-shedding or energy crisis. The farmers will be able to run their tube-wells round the clock and produce crops and vegetables in abundance. Industries will work and produce goods to the maximum level. There will be no unemployment. The members of the future society will lead a happy and contented life.

ان کی توجہ اب شمسی توانائی پر مرکوز ہے جو کہ محفوظ، طاقتور اور نہ ختم ہونے والا ہے۔ اس کے علاوہ وہ ایٹم کو پر امن مقاصد کے لئے استعمال کرنے پر غور کر رہے ہیں۔ اگر یہ مقصد حاصل کر لیا جائے تو پھر لوڈ شیڈنگ یا توانائی کا بحران نہیں ہوگا۔ کاشتکار پورا دن اپنے ٹوب ویل چلانے کے قابل ہوں گے وہ کثرت سے فصلیں اور سبزیاں پیدا کریں گے۔ صنعتیں کام کریں گے اور زیادہ سے زیادہ مقدار میں سامان بنائیں گے۔ بے روزگاری نہیں ہوگی۔ مستقبل کے معاشرے کے افراد کو خوش اور مطمئن زندگی گزاریں گے۔

Technologists and scientists depict a bright picture of the society of the future. According to them, health facilities will be available to all the citizens without any fail. Fatal diseases will be eradicated and very few people will die of these disease

ٹیکنالوجی کے ماہرین اور سائنسدان مستقبل کے معاشرے کی ایک روشن تصویر پیش کرتے ہیں۔ ان کے مطابق صحت کی سہولیات کسی ناکامی کے بغیر تمام شہروں کو دستیاب ہوں گی۔ مہلک بیماریوں کو جڑ سے ختم کر دیا جائے گا اور بہت کم لوگ ان بیماریوں سے مریں گے۔

Latest and modern education in the fields of various technologies and sciences, space technology, nuclear science and technology, engineering technology, literature and fine Arts etc will be available to all the students. Information and computer technology will make tremendous progress and will be available to all.

مختلف ٹیکنالوجیز اور سائنسز، خلائی ٹیکنالوجی، نیوکلیئر سائنس اور ٹیکنالوجی، انجینئرنگ ٹیکنالوجی، ادب اور فنون لطیفہ وغیرہ کے شعبوں میں نیا اور جدید تعلیم ہر ایک طالب علم کو دستیاب ہوگا۔ انفارمیشن اور کمپیوٹر ٹیکنالوجی بہت زیادہ ترقی کرے گی اور تمام لوگوں کو دستیاب ہوگی۔

Due to the use of science and technology on a large scale, the citizens of the society of the future will lead a comfortable and luxurious life. Robots will work in fields and industries in place of workers and labourers.

بڑے پیمانے پر سائنس اور ٹیکنالوجی کے استعمال کی وجہ سے مستقبل کے معاشرے کے شہری بہت آرام دے اور پر تیش زندگی گزاریں گے۔ کھیتوں اور کارخانوں میں کارکنوں اور مزدوروں کی جگہ روبوٹ کام کریں گے۔

A revolution will take place in the field of transportation. There will be 'fast and speedy railway trains and cargos. Travelling from one place to another will take very short time Computers will be common even access to super computers will become quite easy There will be no problem of pollution as the use of solar energy will be common which is more friendly as compared to the coal and fuel energy.

نقل و حمل کے شعبے میں انقلاب آنے گا۔ تیز رفتار ریل گاڑیاں اور ہاربرداری ہوگی۔ ایک جگہ سے دوسرے تک کا سفر بہت کم وقت لے گا۔ کمپیوٹر عام ہوگا یہاں تک کہ سپر کمپیوٹر تک رسائی بہت آسان بن جائے گی۔ آلودگی کا مسئلہ نہیں ہوگا کیونکہ شمسی توانائی کا استعمال عام ہوگا۔ جو کہ کونلے اور ایندھن کی توانائی کے مقابلے میں زیادہ بہتر دوستانہ ہوگا۔

The citizens of the society of the future will put an end to mutual grudges and tussles and will settle their disputes through peaceful negotiations. Minerals of all

kinds will be unearthed. There will be peace and good will among the citizens of the society

مستقبل کے معاشرے کے شہری باہمی کشمکش اور لڑائی جھگڑوں کا خاتمہ کر دیں گے اور وہ پر امن گفت شنید کے ذریعے تنازعات کو حل کریں گے۔ زمین سے تمام قسم کی معدنیات نکالی جائیں گی۔ معاشرے کے شہریوں کے درمیان عمل اور خیر ہو گئی۔

That will be an ideal and peaceful era but to bring that good time, it is the duty of the present generation to devote themselves to the study of science and technology to pave a way for a successful, peaceful and advanced society in the! years to come.

یہ ایک مثالی اور پر امن دور ہو گا لیکن اس اچھے وقت پر لانے کے لیے یہ موجودہ نسل کا فرض ہے کہ وہ خود کو سائنس اور ٹیکنالوجی کے مطالعے کے لیے وقف کر دیں۔ تاکہ آنے والے دور میں کامیاب پر امن و ترقی اسی معاشرے کی تشکیل کے لئے راہ ہموار کی جائے۔

About the Author

This article has been taken from the English news-paper and has been simplified by Prof. Mohibullah This article is full of information about technology and science in the past and the present It presents the picture of the society of the future in the fields of technology and science.

New Vocabulary

Words	Meanings
Abode	Place for living, residence
Abundance	Large quantity, more than enough
Advances	Progresses, successes
Barren	Dry and tree-less lands, not cultivable
Benefits	Advantages, uses
Besides	Moreover, apart from
Bumper crops	Crops in abundance
Capability	The power to do
Contented	Well satisfied-patient
Create	To bring into existence
Crisis	Hard and difficult time
Disaster	Hard and difficult time, trouble
Efficient	Effective, useful
Enumerate	Mention one by one, one after another
Focus	Concentration
Handle	To tackle, to manage
Harness	Bring under control

Live-stock	Rearing cattle like cows, sheep etc.
Inexhaustible	Everlasting, not ceasing
Infections	Wounds, injuries
Infectious disease	Disease that transmit from one person to another
Isolation	Separation, loneliness, aloofness
Leaps and bounds	With a rapid pace, speed
Luxuries	Comforts, facilities
Means	Sources
Modify	Change, alter
Numerous	Countless, a large number
One score ears	Twenty years
Pandemic	Universal disease, epidemic
Pesticides	Pets killing medicines, chemicals
Plague	A fatal disease caused by rats, cats, monkeys etc
Preserve	To protect from being spoiled
Real extent	Great deal
Requirements	Needs, wants
Revolution	Change, alteration

Self-esteem	Self-respect, honour, prestige
Sophisticated	Latest, modern, new
Superstitions	False beliefs
Terribly	Frightfully
Tremendous revolution	Great and huge change
Uplifted	Risen
Variety	Kind, sort, types
Vital	Important, significant
Yield	Product

STUDY QUESTIONS

Recalling

1) **When did the modern science and technology begin to make progress?**

Ans: Science and technology began to make progress in the seventeenth century. Since then technology and science have been making progress by leaps and bounds.

(OR)

Modern science and technology began to make progress in the seventeen century.

2) How have modern science and technology brought a revolution in the life of human beings?

Ans: Modern science and technology have brought a revolution in the life of human beings through new inventions and discoveries in a great number of fields, like medicine, engineering and mechanical technology, communication technology, agriculture, space technology, and transport.

(OR)

Modern Science and Technology have brought a revolution in the life of human being. The benefits got from the application are enormous. It is impossible to enumerate them. Some of them are radio, T.V., mobile laptop, machines, automobiles, and aero planes, Tractor, Thresher, Combine, Water Pump, Telephone, Telegraph, Medicines, and Surgery etc.

3) How has science enabled man to modify his environment?

Ans: Science has enabled man to modify his environment through its diverse and infinite applications and advances, developing in him self-confidence, self-esteem and courage. Now man is not at the mercy of his environment. Rather, he has now the capability to control and modify it to sit his needs and requirements. As compared to man's belief in superstitions, supernatural forces, magic and fortune telling in the past for the control of his future, he is now more confident to handle his environmental conditions by adopting a scientific, independent and logical approach.

4) What did people believe in before the establishment of science and technology?

Ans: Before the establishment of science and technology, people believed, in superstitions and in certain supernatural forces for the control of their future. They

also used to believe in magic and fortune telling. In addition, they attributed the weather conditions or disaster to supernatural, bad or evil forces and did not think logically and independently.

5) How do people think in the era of technology and science?

Ans: In the era of science and technology, people think independently, logically and scientifically. They do not attribute the weather conditions or disaster to supernatural, bad or evil forces. They do not believe in superstitions, magic and fortune telling for the control of their future. They believe in handling their environmental conditions by using scientific methods.

6) Why did millions of people die in the great plague that started in 542 AD?

Ans: Millions of people died in the great plague that started in 542 AD because modern medicines, scientific equipments and instruments of surgery had not been developed and discovered by then.

7) When and by whom was penicillin discovered?

Ans: Penicillin was discovered by Alexander Fleming in 1922. This discovery revolutionized the treatment of infections and infectious diseases.

8) Has smallpox been eradicated once for all from the world?

Ans: Yes, smallpox has been eradicated once for all from the world. Now you cannot see a single patient suffering from this disease.

(OR)

Yes, smallpox has been completely eradicated once for all from the world with the discovery of its medicines.

9) How people travelled from one place to another in olden days. What hardships did they have to suffer?

Ans: People used to travel on foot or by animals or animal driven carts from one place to another. They had to suffer hardships during the long journeys. For example, the speed was terribly slow as compared with that of today's travel. That was the reason that it took Marco Polo, his father and his uncle three years to reach China from Venice (Italy). Besides, some people even died during such journeys.

(OR)

People used to travel on foot or on animals or animal driven carts. They had to suffer hardships and sufferings in the way. The dacoits often looted them in the way. They find hard to get water often.

10) What revolution has taken place in the field of transportation due to modern technology?

Ans: The revolution that has taken place in the field of transportation due to modern technology is that the means of transportation have squeezed the distances, overcome the forces of gravity and made possible the exploration of the outer space. Man has reached the moon and is trying to reach other planets. Now, only in a few hours one can fly around the world or travel from one continent to another. Modern networking of roads and the inventions of automobiles, aeroplanes, rockets and steam engines have transformed the world into a global village or a global apartment.

(OR)

Modern technology has brought revolution in the field of transportation. The advance means of transportation have squeezed the distances. Today man is leaping on the moon and is trying to reach other planets. Before this advancement the world was not so integrated or reachable as it is today, it is the miracle of science and technology that only in a few hours one can fly around the world.

11) Enumerate the various means of communications brought about by modern technology and science.

Ans: The various means of communication brought by modern technology and science are a series of inventions like telegraph, telephone, radio, television, print media, mobile communication, satellite, electronic mail and internet.

(OR)

Communication technology has brought a tremendous revolution in modern societies. A few years ago it was very difficult for the people of one country to get news, letters, information and knowledge from other countries. People of the world lived in isolation. Due to efficient media and quick means of communication now the nations of the world are in close contact with one another. Telegraph, telephone, radio, television, print media, satellite, electronic mail and internet have converted the world into a global village.

Interpreting

12) How has man succeeded in conquering the space?

Ans: Man has succeeded in conquering the space with the help of modern inventions and technologies like automobiles, airplanes, rockets, and steam

engines. As a result, modern world has been contracted into a global village or global apartment.

(OR)

Man has conquered the space. He has reached moon and is now trying to reach other planets. Scientists have set up space laboratories there and researches are underway.

13) What changes have the modern technology brought in the field of agriculture?

Ans: Modern technology has brought tremendous changes in the field of agriculture. It has greatly helped man to bring barren and arid lands under the plough. It has helped man to construct dams for irrigation and generation of electricity. It has helped the agriculturists to increase their yield per acre. It has helped man to grow bumper crops by using chemical fertilizers. It has enabled man to get good quality seeds, better varieties of crops, and pesticides. It has helped man to produce more milk, and to process and preserve food. It has helped man to produce vegetables and fruits out of season. These benefits have made human life less laborious and more comfortable.

(OR)

Modern technology is playing a central role in the field of agriculture. It has greatly helped men in developing agriculture, livestock and food industry. It has invented tractor, thresher, combine, driller, seedier, chemical fertilizer, water pumps etc. These help to grow more food.

14) How can we put an end to load-shedding and energy-crisis?

Ans: We can put an end to load-shedding and energy crisis by trying to utilize the atomic energy and the solar energy. In particular, the solar energy is not only cheap and pollution free but also inexhaustible, powerful, and safe.

(OR)

We can put an end to load shedding and energy crisis by focusing on solar energy and the use of atom for peaceful purposes.

Extending

15) What is solar energy? Can it be a suitable substitute for fuel and coal energy?

Ans: Solar energy means the energy derived from the sun's radiation. Yes, of course, solar energy can be a suitable substitute for fuel and coal energy because it is cheap, pollution-free, safe, powerful and inexhaustible.

16) Atomic energy is a big source of energy. How can it be used for peaceful purposes?

Ans: No doubt, atomic energy is a big source of energy and it can be used for peaceful purposes like the production of electricity, cutting the passages for the flow of water in the rocky regions, diversion and change of the direction of the courses of the river, serving as fuel for the driving of mighty ships and submarines, serving as pesticides to protect the crops from harmful insects, etc. which ultimately improve the economic state of the respective state.

Oral Activity

- The students will be divided into three groups.

- The first group will describe the hardships and condition of life of the people in the olden days.
- The second group will express its ideas about the standard of living of the people during the present era of science and technology.
- The third group in the light of the advances, made by technology and science, will depict future society.

Writing Skills

The students will be asked to write an essay on "Technology and science are blessings for humanity".

Ans: TECHNOLOGY AND SCIENCE ARE BLESSINGS FOR HUMANITY

Technology and science are blessings for humanity. In human life, science and technology has made many things simple. Science has invented so many things like sewing machine, refrigerators, household utility materials which are very much useful to the housewives.

Radio, televisions has made the world very improved of thinking and understanding. These blessings of science have made the world closer to all our countrymen.

Science has brought many changes in our daily life in and around us. No area of activity has been left untouched by the invention of science. Science so has revolutionized every man's life.

Due to the blessings of science man has aware of the reasons and causes of those natural phenomena which is important to us.

The blessings of science can also be seen in the field of transportation. The modern modes of transportation has destroyed the barriers of time and distance. The invention of engine, cars and buses made the distance area

closer. Human beings can fly in the air. Aero-plane made the world very nearer to us. Railway made the travels lovers to move throughout the country, and people to travel from country to country by water transport facilities on very cheap cost from a continent to another continent.

Science has already helped to travel in space. Man has landed on the moon and some planets.

Technology is a measure of human development. Technology is part of the life of every human. Technology is a necessary to live and to prove conditions of our live. New technologies help in every field of our life. It is possible to invent a new-medicines against dangerous diseases. it is possible travel by car of talking by phone We can multiply a positive-examples in different field of our life.

The message communication system through phones, telegrams and recently by fax and by e-mails (internet) made us favorable and happy to communicate in a very quick and short period of time Now we get the help of pagers for the better communication systems It is also a gift of science

Several important works done in the field of Microbiology and in the fields of special medicine to get rid of many fatal diseases. Even artificial limbs and organs are available to replace and also to newly main organs It also can be said that different types of natural deficiencies are corrected by oral intakes of vitamins and also of minerals. Science has also given eyes to the blind peoples and also for the deaf peoples. Surgery and X-rays and microscopes also simplified the complications of treatment. E. C. G., etc. had made the dying people alive at present.

On the other hand, daily life made simple in cooking due to innovation of cookers, oven, and liquid gas as fuel purpose. The discovery of electricity made the speed in life and also in different machines. Sewing machines, Radio, T V. etc made the life charming. Young boys enjoy this very much

Anyone can go about the charming situations of science but mainly all of them use to take the fruits of science all over the world.

Lexical Aspects of Language (Grammar)

The Adverb

Read the following sentences:-

- Rana runs quickly
- This is a very sweet mango.
- Gul reads quite clearly.

In sentence 1, quickly shows how (or in what manner) Rana runs that is, quickly modifies the Verb runs.

In sentence 2, very shows how much (or 2 in what degree) the mango is sweet; that is, very modifies the adjective sweet.

In sentence 3, quite shows how far (or to what extent) Gul read clearly; that is, quite modifies the Adverb clearly.

A word that modifies the meaning of a verb, an adjective, or another adverb is called an Adverb. The word quickly, very and quite are therefore, Adverbs.

Def. _ An Adverb is a word which modifies the meaning of a verb and Adjective or another Adverb.

In the following sentences Adverbs modify phrases:

- She was sitting close beside him
- At what hour is the sun right above us?
- Have you read all through this book?
- She was dressed all in white.

- He paid his debts down to the last farthing

Adverbs standing at the beginning of sentences sometimes modify the whole sentence, rather than any particular word, as.

- Probably he is mistaken (= it is probable that he is mistaken)
- Possibly it is as you say Certainly you are wrong
- Evidently the figures are incorrect
- Unfortunately, no one was present there
- Luckily, he escaped unhurt.

Kinds of Adverbs

Adverbs may be divided into the following classes, according to their meaning:-

1) Adverbs of Time (which show when)

- I have heard this before.
- We shall now begin to work
- I had a letter from him lately.
- He comes here daily.
- I have spoken to him already.
- He once met me in Cairo; I have not seen him since.
- Mr. Gupta formerly lived here.
- That day he arrived late.

2) Adverbs of Frequency (which show how often)

- I have told you twice.

- He often makes mistakes.
- The postman called again.
- He frequently comes unprepared.
- I have not seen him once.
- He seldom comes here.
- He always tries to do his best.

3) Adverbs of Place (which show where)

- Stand here.
- The little lamb followed Mary everywhere.
- Go there.
- He looked up.
- Is Mr Das within?
- The horse galloped away?

4) Adverbs of Manner (which show how or in what manner)

- Abrar reads dearly.
- This story is well written.
- The child slept soundly.
- Slowly and sadly we laid him down
- You should not do so.

(Note: This class included nearly all those Adverbs which are derived from adjectives and end in -/y)

5) Adverbs of Degree or Quantity (which show how much, or in what degree or to what extent)

- He was too careless
- These mangoes are almost ripe.
- I am fully prepared.
- The sea is very stormy.
- He is good enough for my purpose.
- I am so glad.
- You are altogether mistaken.
- Things are no better at present.
- She sings pretty well.
- Is that any better?

6) Adverbs of Affirmation and Negation

- Surely you are mistaken.
- He certainly went.
- I do not know him.

7) Adverbs of Reason

- He is hence unable to refute the charge.
- He, therefore, left school.

Some of the Adverbs may belong to more than one class.

- She sings delightfully. (Adverb of Manner)

- The weather is delightfully cool. (Adverb of Degree)
- Don't go far. (Adverb of Place)
- He is far better now. (Adverb of Degree)

Note: The above are all examples of Simple Adverbs.

Yes and no, when they are used to themselves are equivalents of sentence.

- Have you typed the letter? Yes.

(Here yes stands for the sentence 'I have typed the letter'.)

- Are you going to Japan? No.

(Here no means 'I am not going to Japan')

EXERCISE (1)

In the following sentences (1) pick out the Adverbs and tell that each modifies; (2) tell whether the modified word is a Verb, an Adjective, or an Adverb; (4) classify each Adverb as an Adverb of time, place, manner, degree, etc:-

- | | |
|--------------------------------------|------------------------------------|
| 1) He was ill pleased. | 2) Try again. |
| 3) He is too shy. | 4) We rose very early. |
| 5) I am so glad to hear it. | 6) Cut it length wise. |
| 7) Too many cooks spoil the broth. | 8) That is well said. |
| 9) Once or twice we have met alone | 10) Have you heard this before? |
| 11) Father is somewhat better. | 12) I am much relieved to hear it. |
| 13) The patient is much worse today. | 14) She arrived a few minutes ago. |
| 15) She was dressed all in black. | 16) Her son is out in China. |

7.	Too	Many	Adjective	degree or quantity
8.	Well	is said	Verb	Manner
9.	Once twice	have met	Verb	Frequency
	Alone	have met	Verb	Manner
10.	Before	have heard	Verb	Time
11.	Somewhat	Better	Adjective	degree or quantity
12.	Much	am relieved	Verb	degree or quantity
13.	Much	Worse	Adjective	degree or quantity
14.	Ago	Arrived	Verb	Time
15.	All	in black	Adverb Phrase	Degree
16.	Out	is	Verb	Place
	Not	could speak	Verb	Negation
17.	So	Angry	Adjective	degree or quantity
	Far	too	Adverb	degree or quantity

18.	Too	Hasty	Adjective	degree or quantity
19.	Out	Is	Verb	Place
20.	Enough	Old	Adjective	degree or quantity
	Better	to know	Verb	Manner
21.	Not	Need roar	Verb	Negation
22.	Too	High	Adjective	degree or quantity
23.	Differently	See	Verb	Manner
	Now	See	Verb	Time
24.	Not	was built	Verb	Negation
25.	Not	do crowd	Verb	Negation
	So	Closely	Adverb	degree or quantity
	Closely	Together	Adverb	Manner
	Together	do crowd	Verb	Manner
26.	No	Better	Adjective	Negation
	Today	Is	Verb	Time
27.	Not	Put	Verb	Negation

28.	Shamefully	has been treated	Verb	Manner
-----	------------	---------------------	------	--------

• • • • •

When Adverbs are used in asking questions they are called interrogative Adverbs; as,

- Where is Abdul? (Inter. Adverb of Place)
- When did you come? (Inter. Adverb of Time)
- Why are you late? (Inter. Adverb of Reason)
- How did you contrive it? (Inter. Adverb of Manner)
- How many boys are in your class? (Inter. Adverb of Number)
- How high is the Rajabai Tower? (Inter. Adverb of Degree)

Read the sentences:

- Show me the house where (= in which) he was assaulted.

Here the Adverb where modifies the verb was assaulted.

Further the adverb where, like a Relative pronoun, here relates, refers back to its antecedent house. It is, therefore, called a Relative Adverb.

Further examples of Relative Adverbs:-

- This is the reason why I left.
- Do you know the time when the Punjab Mail arrives?

1) Simple Adverbs, used to modify the meaning of a verb, and adjective, or an adverb; as,

- I can hardly believe it.

- How brightly the moon shines?
 - You are quite wrong.
- 2) Interrogative Adverbs, used to ask question as,
- Why are you late?
- 3) Relative Adverbs which refer back to a noun as their antecedent; as,
- I remember the house where I was born.

It will be noticed that:

- (1) A simple Adverb merely modifies some word.
- (2) An Interrogative Adverb not only modifies some word but also introduces a question.
- (3) A Relative Adverb not only modifies some word but also refers back to some antecedent.

Forms of Adverbs

Some Adverbs are the same in form as the corresponding Adjectives; that is, some words are used sometimes as Adjectives, sometimes as Adverbs.

Adjective	Adverbs
He spoke in a loud voice.	Don't talk so loud.
Rana is our fast bowler.	Rana can bowl fast.
He lives in the next house.	When I next see him, I shall speak to him
Every little difficulty ruffles his temper.	He is little known outside Pakistan.
This is a hard sum	He works hard all day.

It's an ill wind that blows nobody good.	I can ill afford to lose him.
He is the best boy in this class.	He behaves best.
He is quick to take offence.	Run quick.
Are you an early riser?	We started early.
The teacher has a high opinion of that boy.	Always aim high.

- Remember that it is only by noticing how a word is used that we can tell what Part of Speech it is.

EXERCISE (2)

- Form sentences to illustrate the use of the following words (1) as Adjectives, (2) as Adverbs:-

very, near, ill, only, dean, long, late, early, fast.

Ans:

Words	Sentences
Very	This is the very book I want. (Adjective) This book is very interesting. Adverb
Near	The church is quite near. (Adjective) The summer holidays are drawing near. Adverb
Ill	He is in ill temper. (Adjective) He speaks ill of his neighbours. Adverb
Only	I was the only person wearing a coat. (Adjective) I saw him only ten minutes ago. Adverb

Clean	Keep the room clean. (Adjective) I clean forgot about it. (Adverb)
Long	He was ill for a long time. (Adjective) How long have you lived here? (Adverb)
Late	The train was forty-five minutes late. (Adjective) He usually gets up late. (Adverb)
Early	He is an early riser. (Adjective) Come as mil as possible. (Adverb)
Fast	My watch is ten minutes fast. (Adjective) He speaks very fast. (Adverb)

• • • • •

Some Adverbs have two forms, the form ending in ly and the form which is the same as the Adjective; as,

- He sings very loud. He sings very loudly.

Sometimes, however, the two forms of the Adverb have different meanings; as,

- Rana works hard (=diligently).
- I could hardly (= scarcely) recognize him.
- Stand near. (Opposed to distant)
- He arrived late. (opposed to early)
- I have not seen him lately (=recently).
- I am pretty (= tolerably, fairly) sure of the fact.
- She is prettily (= nearly, elegantly) dressed.
- Some Adverbs are used as Nouns after preposition; as,

- He lives far from here (z this place)
- He comes from there (= that place)
- I have heard that before now (= this time)
- By then (= that time) the police arrived on the scene.
- Since when (=what time) have you taken to smoking?
- The rain comes from above.

[Note: The common use of from with thence and whence is wrong.

Thence = from there; whence = from where. Thus the addition of from to either of these words is incorrect].

- Certain Adverbs sometimes seem to be used as Adjectives, when some participle or adjective is understood.
- The then king = the king then reigning.
- A down train = a down -going train.
- An up train= an up-going train.
- The above statement = the statement made above.
- In the following sentences the is not the definite article but an old demonstrative pronoun used as an Adverb.
- The more the merrier (= by how much the more by so much the merrier; that is the more numerous a party is, the more enjoyable it is)
- The fewer the better (= by how much the fewer by so much the better)
- The sooner the better (= by how much the sooner by so much the better)
- He has tried it and is (so much) the better for it.

It will be noticed that the is used as an adverb only with an adjective or another adverb in the comparative degree.

Nouns expressing adverbial relations of time, place, distance, weight, measurement, value, degree, or the like, are often used as Adverbs. Thus:-

- The siege lasted a week.
- He went home.
- The load weighs three tons.
- The army advanced a few yards.
- The wound was skin deep.
- This will last me a month.
- We walked five miles.
- It measures five feet.
- The watch is worth fifty rupees.

A noun so used is called an Adverbial Accusative. Sometimes Verbs are used as adverbs; as, Smack went the whip.

Comparison of Adverbs

Some Adverbs, like Adjectives, have three degrees of comparison. Such Adverbs are generally compared like Adjectives.

If the Adverb is of one syllable, we form the Comparative ending in er, and the Superlative by

Fast	Faster	Fastest
Hard	Harder	Hardest
Long	Longer	Longest
Soon	Sooner	Soonest

Rana runs faster. (Comparative)

Haris ran faster of all. (Superlative)

- Adverbs ending in /y form the Comparative by adding more and the superlative by adding most; as,

Swiftly more swiftly most swiftly

Skillfully more skillfully most skillfully

Abdul played skillfully. (Positive)

Karim played more skillfully than Abdul. (Comparative)

Of all the eleven, Ahmed played most skillfully. (Superlative)

But note early, earlier, earliest

- I came early this morning.
- Abrar came earlier.
- Sufyaan came earliest of all.

It will be noticed that only Adverbs of Manner, Degree and Time admit of comparison.

Many Adverbs, from their nature, cannot be compared; as,

Now, then, where, there, once.

Some Of the commonest adverbs form their Comparative and Superlative Degrees irregularly.

Positive	Comparative	Superlative
ill, badly	Worse	Worst
Well	Better	Best
Much	More	Most

Little	Less	Least
Nigh, near	Nearer	Next
Far	Farther	Farthest
Far	Further	Furthest
Late	Later	Last

- Rana writes well.
- Anjum writes better than Rana.
- Abrar writes best of all.
- Do you work much?
- I work more than you do.
- Haris works most of the three of us.

EXERCISE (3)

Compare the following Adverbs.

Suddenly, often near, loud, hard, wisely, patiently.

Positive	Comparative	Superlative
Suddenly	More suddenly	Most suddenly
Often	Oftenest/More often	Oftenest/Most often
Near	Nearer	Nearest/next
Loud	Louder	Loudest

Hard	Harder	Hardest
Wisely	More wisely	Most wisely
Patiently	More patiently	Most patiently

Formation of Adverbs

Adverbs of Manner are mostly formed from Adjectives by adding /y (a corruption of like); as.

Clever, cleverly, wise, wisely, kind, kindly, foolish, foolishly, quick, quickly, beautiful, beautifully.

Akbar was a wise king.

He ruled wisely for many years.

- When the Adjective ends in y preceded by a consonant, change v into l and ly; as,

happy, happily: ready, readily: heavy, heavily.

- When the Adjective ends in le, simply change e into y; as,
single, singly: double, doubly.
- Some Adverbs are made up of a Noun and a qualifying Adjective; as,
Sometimes, meantime, meanwhile, yesterday, midway, otherwise.
- Some Adverbs are compounds of on (weakened to a) and Nouns; as
Afoot (= on foot), abed, asleep, ahead, abroad, away.
- Similarly there are other Adverbs which are also compounds of some
Preposition and a Noun; as,

Betimes, besides, to-day, to-morrow, overboard.

Note: The word *be* is an old form of the Preposition *by*.

- Some Adverbs are compounds of a Preposition and Adjective; as, *Abroad, along, aloud, anew, behind, below, beyond*.
- Some adverbs are compounds of a Preposition and an Adverb as, *Within, without, before, beneath*.

Here is a class of adverbs which are derived from the Pronouns *the (= that), he, who*.

Pronouns			Adverbs		
	Place	Motion to	Motion from	Time	Manner
The	There	Thither	Thence	Then	Thus
He	Here	Hither	Hence	When	How
Who	Where	Whither	Whence		

- Many of the above Adverbs are compounded with Preposition. Thus we get: *thereby, there from, therein, thereof, thereon, thereto, therewith, hereafter, hereby, herein, hereupon, herewith; wherefore, wherein, whereon, whereof; hitherto; thenceforth, thenceforward;*
- Two Adverbs sometimes go together, joined by the Conjunction; and: as
- *Again and again (= more than once, repeatedly),*
- *By and by (= before long, presently, after a time)*
- *Far and near (= in all directions)*
- *Far and wide (= comprehensively)*
- *Far and away (= by a great deal, decidedly, beyond all comparison),*
- *First and foremost (= first of all),*

- Now and then (= from time to time, occasionally),
- Off and on (= not regularly, intermittently),
- Once and again (= on more than one occasion, repeatedly)
- Out and away (= beyond comparison, by far)
- Out and out (= decidedly, beyond all comparison)
- Over and over (= in addition to, besides, as well as)
- Through and through (= thoroughly, completely),
- Thus and thus (= in such and such a way),
- To and fro (= backwards and forwards, up and down)
- Good books should be read again and again.
- I warned him again and again.
- By and by the tumult will subside.
- His fame has spread far and near.
- As a statesman he saw far and wide.
- This is far and away the best course.
- He is far and away the best bowler in our eleven.
- He now and then writes on fiscal questions.
- I write to him now and then.
- He worked ten years, off and on, on his Pali dictionary.
- I have told you once and again that you must not read such trash.
- This is out and away the best work on Astronomy.
- He gained over and above this, the goodwill of all people.
- He reads all the novels of Scot over and over.

- I believe Balu is out and out the best Hindu bowler.
- Thus and thus only we shall succeed.
- He walked to and fro, meditating.

Position of Adverbs

Adverbs of manner, which answer the question "How?" (e.g. well, fast, quickly, carefully, calmly) are generally placed after the verb or after the object if there is one; as,

- It is raining heavily.
- The ship is going slowly.
- She speaks English well.
- He does his work carefully.
- ◆ Adverbs or adverb phrases of place (e.g. here, there, everywhere, on the wall) and of time (e.g. now, then, yet, today, next, Sunday) are also usually placed after the verb or after the object if there is one; as,
 - He will come here.
 - I looked everywhere.
 - Hang the picture there.
 - I met him yesterday.
 - They are to be married next week.
- When there are two or more adverbs after a verb (and its object), the normal order is: adverb of manner, adverb of place, adverb of time (MPT).
 - She sang well in the concert.
 - We should go there tomorrow evening.

- He spoke earnestly at the meeting last night.
- Adverbs of frequency which answer the question 'How often?' (e.g. always, never, often, rarely, usually, generally) and certain other adverbs like almost, already, hardly, nearly, just, quite are normally put between the subject and the verb if the verb consists of only one word; if there is more than one word in the verb, they are put after the first word.
- His wife never cooks.
- He has never seen a tiger.
- I have often told him to write neatly.
- We usually have breakfast at eight.
- My uncle has just gone out.
- I quite agree with you.
- If the verb is am/are/is/was, these adverbs are placed after the verb, as
- I am never late for school.
- He is always at home on Sundays.
- We are just off.
- These adverbs are usually put before an auxiliary or the single verb be, when it is stressed; as,
- "Abdul has come late again, "Yes, he always does come late".
- "When will you write the essay?" "But I already have written it".
- "Will you be free on Sundays?" "I usually am free on Sundays".
- "Do you eat meat?" "Yes, I sometimes do".
- When an auxiliary is used alone in short response, as in the last example above, it is stressed and, therefore, the adverb comes before it.

The auxiliaries *have to* and *used to* prefer the adverb in front of them.

- I often have to go to college on foot.
- He always used to agree with me.
- When an adverb modifies an adjective or another adverb, the adverb usually comes before it; as

- Rana is a rather lazy boy.
- The dog was quite dead.
- The book is very interesting.
- Do not speak so fast.

But the adverb *enough* is always placed after the word which it modifies; as,

- Is the box big enough?
- He was rash enough to interrupt.
- He spoke loud enough to be heard.

As a general rule, the word *only* should be placed immediately before the word it modifies; as,

- I worked only two sums.
- He has slept only three hours.

◆ In spoken English, however, it is usually put before the verb. The required meaning is obtained by stressing the word which the *only* modifies; as,

- I only worked two sums.
- He has slept only three hours.

EXERCISE (3)

Insert the given adverbs (or adverb phrases) in their normal position:-

1) He invited me to visit him (often).

Ans: He often invited me to visit him.

2) I am determined to yield this point (never).

Ans: I am determined never to yield this point.

3) I know the answer (already).

Ans: I already know the answer.

4) We have seen her (just, in the square).

Ans: We have just seen her in the square.

5) I have to reach the office (by 9:30, usually).

Ans: I usually have to reach the office by 9:30.

6) Will he be (there, still)?

Ans: Will he still be there?

7) I shall meet you (this evening, in the park).

Ans: I shall meet you in the park this evening.

8) The train has left (Just).

Ans: The train has just left.

9) "Can you park your car near the shops?" "Yes, I can (usually)."

Ans: "Can you park your car near the shops?" "Yes, I usually can".

10) You have to check your oil before starting (always).

Ans: You always have to check your oil before starting.

11) He is in time for meals (never).

Ans: He is never in time for meals.

12) We should come (here, one morning).

Ans: We should come here one morning.

13) He has recovered from his illness, (quite).

Ans: He has quite recovered from his illness.

14) She goes to the cinema (seldom).

Ans: She seldom goes to the cinema.

15) That is not good (enough).

Ans: That is not good enough.

