MEDICAL TERMINATION OF PREGNANCY (MTP)

- **Medical termination of pregnancy (MTP) or induced abortion** is **intentional** or **voluntary termination** of pregnancy before the fetus becomes viable. Nearly 45 to 50 million MTPs are performed in a year all over the world which accounts to 1/5th of the total number of conceived pregnancies in a year.
- MTP is comparatively safe **upto 12 weeks** (the first trimester) of pregnancy.
- **Government of India legalised MTP in 1971.**
- At present, termination is legally allowed upto 28th week of pregnancy if the gynaecologist consider the need for abortion.

SEXUALLY TRANSMITTED DISEASES

- Infections and diseases which are transmitted through sexual contact with infected persons are collectively called **sexually transmitted diseases (STDs)** or **venereal diseases (VD)** or **reproductive tract infections (RTI).**
- Except HIV infection, Hepatitis-B and genital herpes, all other STDs are completely curable if detected early and treated properly.
- *Some common STDs are tabulated on the next page.*

Table : Some common STDs

Disease	Pathogen	Transmission	Incubation
I. STDs caused by Bacteria			
Syphilis	*Treponema pallidum*	Through sexual contact and from mother to child.	10-90 days
Gonorrhoea	*Neisseria gonorrhoeae*	Sexual contact, common toilets and under clothes	2-5 days
II. STDs caused by Viruses			
AIDS	Human Immuno-deficiency virus (HIV)	Through semen and blood.	6 months - 10 years
Hepatitis B	Hepatitis B virus (HBV)	Blood transfusion, sexual contact, saliva, tears, intravenous drug abuse, tatooing, ear and nose piercing, sharing of razors, etc.	30-80 days
Genital herpes	Herpes simplex virus	Genital secretions (through contact with genitalia).	—
Genital warts	Human papilloma virus	Sexual intercourse	—
III. STD caused by Chlamydia			
Chlamydiasis	*Chlamydia trachomatis*	Sexual contact	1 week
IV. STDs caused by Protozoans			
Trichomoniasis	*Trichomonas vaginalis*	Sexual intercourse	—
Amoebiasis	*Entamoeba histolytica*	Contaminated food and water, sometimes through sexual contact	—

INFERTILITY

- Inability to conceive or produce children inspite of unprotected sexual intercourse is called **infertility**.
- Infertility occurs due to defects in the male or in the female or in both.
- In case the treatment of cause of infertility is not possible, the couple can be assisted to have children through certain special techniques called **assisted reproductive technologies (ART)**. Some important techniques of ART are:

Test Tube Baby

- This method involves *in vitro* fertilisation (IVF), *i.e.*, fertilisation of male and female gametes outside the body in almost similar conditions as that *in vivo* followed by **embryo transfer (ET).**
- In this method, ova from wife/donor female and sperms from husband/donor male are induced to form zygote in laboratory.
- Embryo upto 8 blastomeres is transferred into the Fallopian tube (**ZIFT - Zygote Intra Fallopian Transfer**) to complete its further development.
- If the embryo is with more than 8 blastomeres, then it is transferred into uterus (**IUT - Intra Uterine Transfer**) to complete its further development.

Artificial Insemination (AI) Technique

- AI technique is used in case of infertility of male partner, where the husband is either unable to inseminate the female or has very low sperm count in the ejaculation.
- In this technique, the semen collected either from the husband or a healthy donor is artificially introduced into the vagina or uterus (**IUI - intrauterine insemination**) of the female.

Gamete Intra Fallopian Transfer (GIFT)

- This method is used in females who cannot produce ova but can provide suitable environment for fertilisation and further development of embryo in the oviducts.
- In this technique, both sperms and unfertilised oocytes are transferred into Fallopian tubes of female and fertilisation takes place inside the body of female.

Intracytoplasmic Sperm Injection (ICSI)

- In this technique, one single spermatozoon or even a spermatid is injected directly into the cytoplasm of an oocyte by micropuncture of the zona pellucida.
- The embryo is later transferred by ZIFT or IUT in woman.

DETECTION OF FETAL DISORDERS

- The fetal disorders during early pregnancy can be detected by following techniques:

Amniocentesis

- Amniocentesis is a fetal sex determination and disorder test based on the chromosomal pattern in the amniotic fluid surrounding the developing embryo.
- At the early stage of pregnancy (14^{th} or 15^{th} week), the location of the fetus and placenta is determined by sonography.
- Then a small amount of amniotic fluid is drawn by passing a special surgical syringe needle into the abdominal wall and uterine wall into the amniotic sac containing amniotic fluid.

- The amniotic fluid contains cells from fetus skin and respiratory tract. These cells are cultured and are used to determine chromosomal abnormalities (Down's syndrome, Klinefelter's syndrome, etc.) and metabolic disorders (phenylketonuria, sickle cell anaemia, etc.) of the fetus.
- Unfortunately, this useful technique, is being misused to kill the normal female fetuses. It has been **legally banned for the determination of sex** to avoid female feticide.

Non-invasive techniques

- One of the widely used non-invasive technique to determine fetal condition is **ultrasound imaging.**
- Another non-invasive technique is based on the fact that a few fetal blood cells leak across the placenta into the mother's blood stream. A blood sample from the mother provides enough fetal cells that can be tested for genetic disorders.

Fetoscopy

- Fetoscopy is another technique in which a needle-thin tube containing a viewing scope is inserted into the uterus, giving the physician a direct view of the fetus.

Questions

1. **What are sexually transmitted diseases? Give two examples.**
2. **Define the term medical termination of pregnancy (MTP).**
3. **What is the main objective of "Assisted Reproductive Technology" programme?**
4. **What is Amniocentesis Test? Mention one positive and one negative application of amniocentesis.**
5. **Explain *in-vitro* fertilization (IVF) and embryo transfer in brief.**
6. **Describe any three assisted reproductive techniques practised to treat infertility.**