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# Reproductive Health



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# Reproductive Health

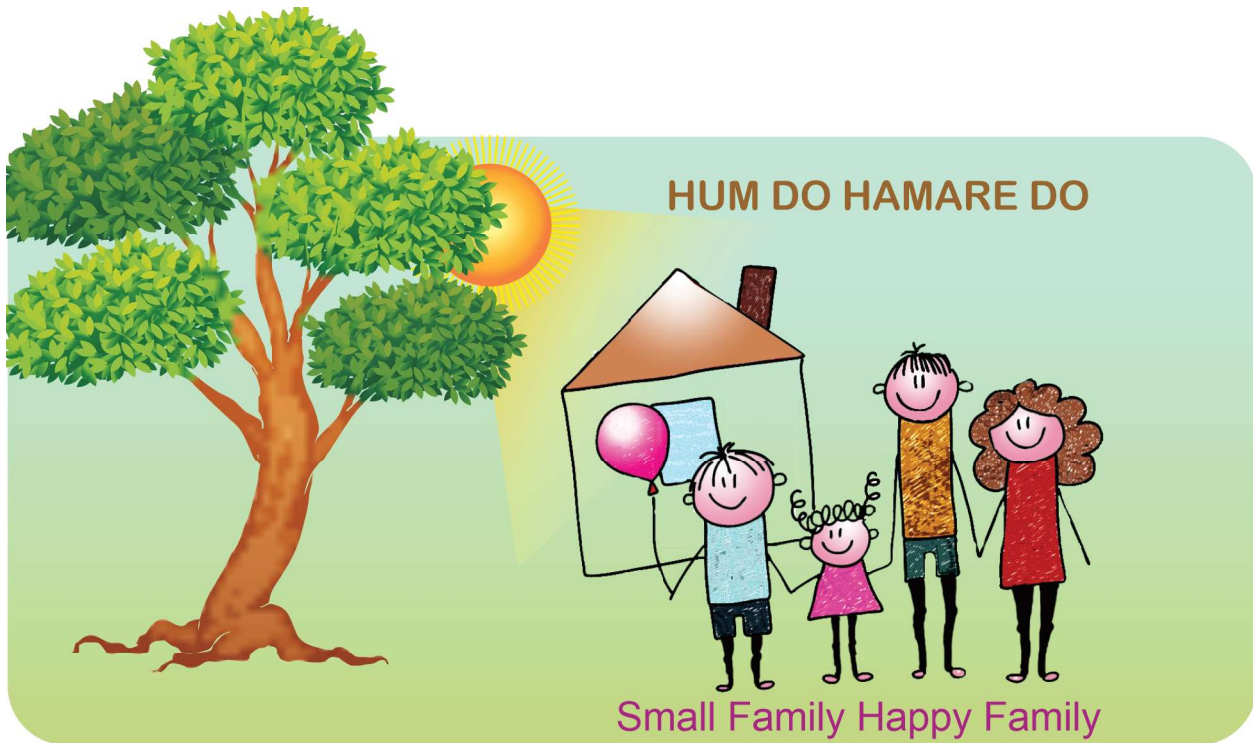
## INTRODUCTION

- A society with people having physically and functionally normal reproductive organs and normal emotional and behavioural interactions among them in all sex related aspects might be called reproductively healthy.
- To achieve overall reproductive health as a social goal, the Indian Subcontinent is one of the pioneer countries to launch policies and programmes nationwide.

## Definition

### Reproductive Health:

Reproductive health means a total well-being in physical, emotional, behavioural and social aspects of reproduction.



## REPRODUCTIVE HEALTH—PROBLEMS AND STRATEGIES

- As interpreted by the World Health Organisation (WHO), an overall well-being in the physical, emotional, behavioural and social regards of reproduction is known as reproductive health.
- A reproductively healthy society is a society with people having physically and functionally normal reproductive organs and normal emotional and behavioural interactions among them in all sex related aspects.

## Rack Your Brain



When is World Population Day observed?



- India is the first country to initiate action plans or programmes at the national level to attain total reproductive health; these programmes were called the Family Planning Programmes and were initiated in 1951.
  - Family planning projects have been improvised to incorporate even larger number of reproduction—related sphere and are presently running under the well accepted name (RCH) ‘**Reproductive and Child Health Care programmes**’.
  - Reproductive and Child Health Care programmes holds the major tasks of
    - **Creating awareness amongst the masses regarding numerous reproduction—related aspects.**
    - **Delivering benefits and support to construct a reproductively healthy society.**
  - Governmental and non-governmental agencies have introduced numerous steps to raise awareness amongst the masses towards reproduction—related aspects; audio-visual and print media is one of the major sources to reach the masses.
  - Sex education is given in the schools to impart the right information about sex related aspects, cautious as well as sanitary copulation practices and specially focusing on sexually transmitted diseases (STDs) to helps the students to reside a reproductively healthy life.
  - Inculcating knowledge regarding the following among the masses majorly the fertile couples and people of the marriageable age group:
    - **Options of accessible for birth control.**
    - **Care of pregnant women.**
    - **Postnatal care of the mother and child.**
    - **Significance of breast-nursing.**
    - **Uniformity in chances for the female and malechild.**
- This facilitates them to form a socially conscious, fit household of a desired size:
- Awareness should be created amongst the masses regarding the evils of uncontrolled population

### Definition

#### **Population Explosion:**

An enormous increase in the size of a population in a short span of time is called population explosion.

### Definition

#### **Demography:**

Study of human population

### Rack Your Brain



What are the possible reasons of population explosion in India?

In India, human population is heavily weighed towards the younger age groups as a result of

- (1) Short life span of many individuals and high birth rate
- (2) Long life span of many individuals and high birth rate
- (3) Short life span of many individuals and low birth rate
- (4) Long life span of many individuals and low birth rate

growth, social issues like sexual abuse and sex related crimes, to also enable them to use their discretion to come up with adequate measures to prevent them from these evils and construct a reproductively healthy society.

### POPULATION EXPLOSION

- Enormous increase in population within a shorter span of time.

### Reasons for Population Explosion

- Developing health provisions.
- Engagement in technology.
- Comparatively superior lifestyle, have an explosive impact on the growth of population.
- Descending Mortality Rate.
- Decreasing Maternal Mortality Rate (**MMR**).
- Descending Infant Mortality Rate (**IMR**).
- Spike in the number of individual of the reproductive age.



### Previous Year's Question

High increase in human population is due to :

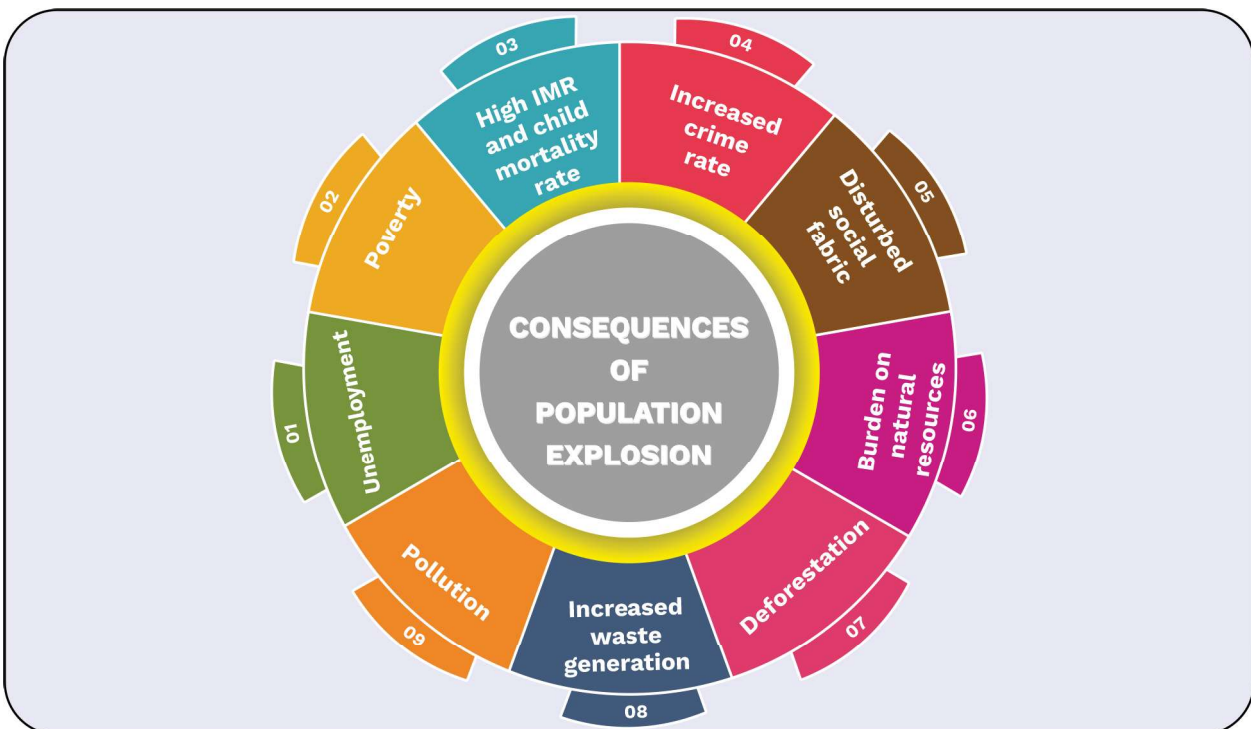
- (1) Increase in average life span
- (2) Better medical facilities
- (3) Decrease in death rate
- (4) All of these

### Gray Matter Alert!!!

**World AIDS Day** is observed on 1st December

**World Population Day** is observed on 11th July.

### Consequences of Population Explosion





**Note:** Few Facts Regarding Population

The world's population was about two billion in 1900 A.D. and it was six billion in 2000 A.D.

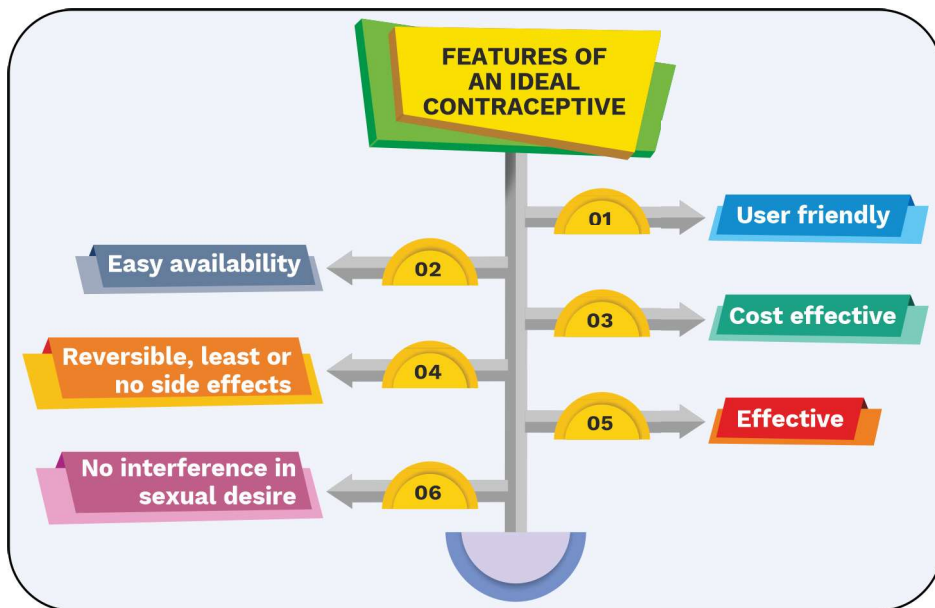
Population of India at the time of independence was nearly around 350 million and it reached to one billion in 2000 A.D. (it has crossed one billion in May, 2000 A.D.)

According to 2001 census report, it is around 1.7 per cent, i.e., 17/1000/year and at this rate the population is expected to double in 33 years.

**BIRTH CONTROL**

- The major step towards controlling the rising growth in population is to bring down the birth rate.
- **Steps for Birth Control:**
  - Hiking the legal age for marriage to 21 for males and 18 for females.
  - By spreading the awareness to motivate couples to use contraceptive methods.
  - Couples with small families should be promoted by providing incentives to small families.

• **Features of an Ideal Contraceptive**



**Previous Year's Question**



Which of the following is a correct statement?

- (1) IUDs once inserted need not be replaced
- (2) IUDs are generally inserted by the user herself
- (3) IUDs increase phagocytosis of sperms in the uterus
- (4) IUDs suppress gametogenesis.

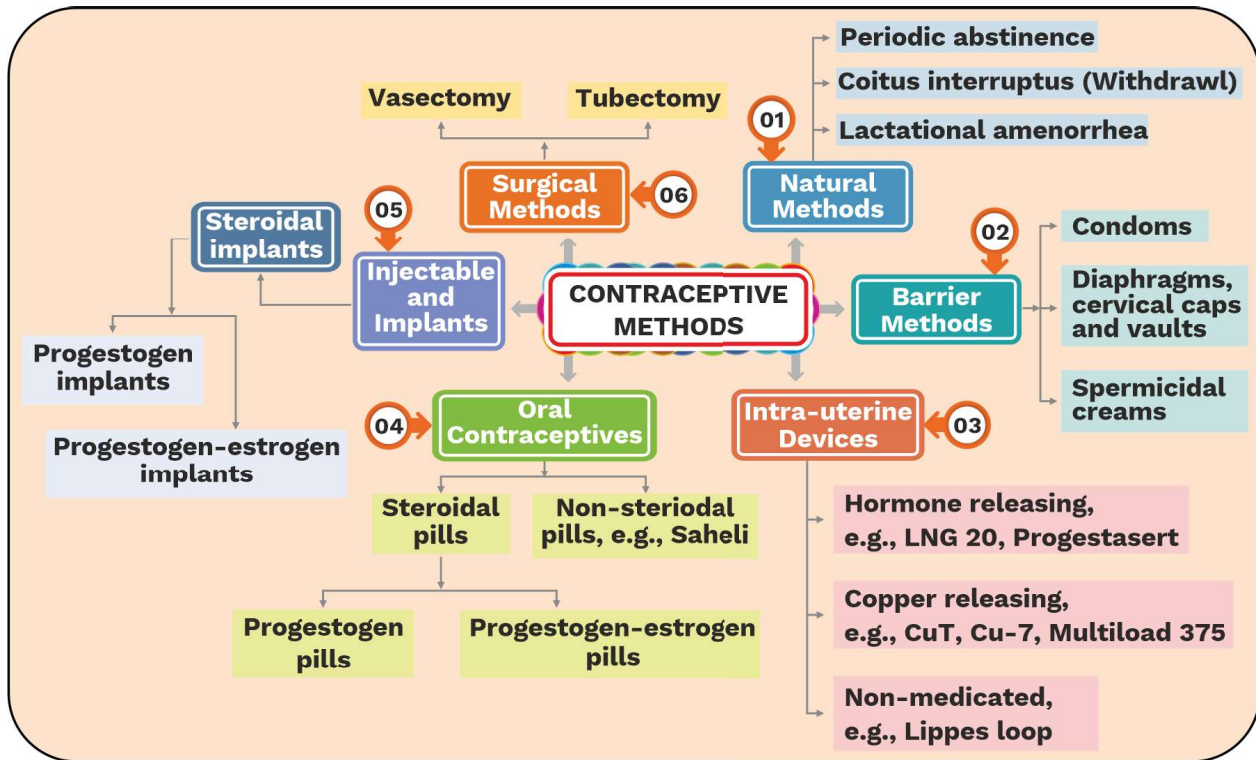
**Rack Your Brain**



When was medical termination of pregnancy legalised in India?



## METHODS OF BIRTH CONTROL



- The contraceptive methods are grouped into the following categories:
  - Natural methods
  - Barrier methods
  - Intra Uterine Devices (**IUDs**)
  - Oral contraceptives
  - Injectables and implants
  - Surgical methods

### NATURAL METHODS

- These practices function on the principle of dodging the prospect of reunion of the gametes.
- **Periodic Abstinence**
  - This practice involves the couples to abstain or keep away from having intercourse during which ovulation is expected to occur and chances of fertilisation are higher. i.e., around the period of 10–17th day of the menstrual cycle,

### Definition

#### In Vivo fertilisation.

When the fusion of sperm with egg occurs within the body of a female. It is known as internal fertilisation.

### Previous Year's Question

Which of the following is a technique of direct introduction of gametes into the oviduct :

(1) MTS                      (2) ET  
 (3) IVF                        (4) POST



- **Coitus Interruptus (withdrawal)**
  - This practice involves removal of penis from the vagina before ejaculation and insemination is avoided..
- **Lactational Amenorrhea**
  - When there is an absence of menstruation during periods because of intense lactation following parturition.
  - As ovulation does not occur during this period, chances of conception are almost down to zero. This method is only effective for a maximum period of about six months after parturition and is only caused due to intense lactation.

#### BARRIER METHODS

- The fusion of the ovum and sperms is prevented from fusion with the help of barriers.
- Contraceptive Barriers are available for both males and females.
- **Condoms** are the barriers made of thin rubber or latex sheath, to cover the penis in male or vagina and cervix in females. Usage of condom can keep the sexually active individuals from contracting sexually transmitted diseases.
- **Diaphragms:** Barriers (made of rubber) such as vaults and cervical caps are used by females. Since made from rubber, they can be reused.
- **Spermicidal creams:** Along with the use of barriers these creams are used to increase contraceptive efficiency.

#### INTRA-UTERINE DEVICES (IUDs)

- These devices are administered into the uterus of the female.
- **Types of Intra-Uterine Devices:**
  - Non-medicated IUDs, e.g., lippes loop.
  - Copper releasing IUDs, e.g., CuT, Cu-7, Multiload 375.
  - Hormone releasing IUDs, e.g., progestasert, LNG 20.

#### Definition

##### **Lactational Amenorrhea:**

It refers to the absence of menstruation during the period of intense lactation following parturition.

#### Definition

##### **Intra Uterine Devices (IUDs):**

These are the devices inserted in the uterus to achieve contraception.

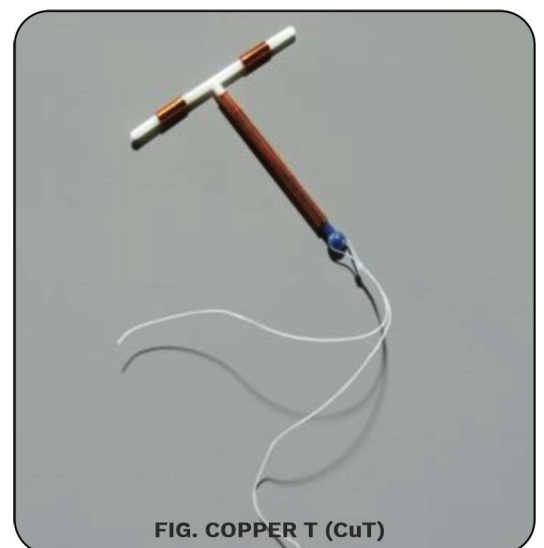


FIG. COPPER T (CuT)

### • **Functioning of IUDs**

IUDs prevent contraception in the following ways:

- By increasing phagocytosis of sperms .
- By suppressing sperm motility and thus reducing fertilising ability (by copper releasing IUDs) of sperms.
- By making the uterus unsuitable for implantation.
- By making the cervix antagonistic to sperms.

### **ORAL CONTRACEPTIVES**

- Oral contraceptives are hormonal preparations in the forms of 'pills'.
- They are either progestogens or progestogen-estrogen combinations.
- In order to prevent or retard entry of sperms into the female , they alter or cause obstruction in the process of ovulation and implantation. It also modifies the quality of cervical mucus.
- Oral contraceptive pills needs to be administered on a daily basis for a period of 21 days starting within the first five days of menstrual cycle.

### **INJECTABLES AND IMPLANTS**

- The combination of progestogen-estrogen or progestogens is also administered by the means of injections or as implants under the skin.
- Though their mode of action is alike to that of oral contraceptives, but have longer effective period

### **Rack Your Brain**



**Assertion:** Copper-T is an effective contraceptive device.

**Reason :** Copper-T prevents passage of sperms from vagina upwards into fallopian tubes.

- (1) Assertion and Reason both are true and Reason is the correct explanation of Assertion.
- (2) Assertion and Reason are true but Reason is not correct explanation.
- (3) Assertion is true Reason is false.
- (4) Both Assertion and Reason are false.

### **Previous Year's Question**



$\text{Cu}^{++}$  released from copper releasing intra uterine devices

- (1) Make uterus unsuitable for implantation
- (2) Increase phagocytosis of sperms
- (3) Suppress sperm motility
- (4) Prevent ovulation

### **Saheli: A Contraceptive Pill**

Saheli is an example of oral contraceptive.

It contains a non-steroidal principle called ormeloxifene or centchroman which is a unique combination of weak estrogenic and potent anti-estrogenic inhibiting the fertilised egg from nidation.

It is once a week pill.

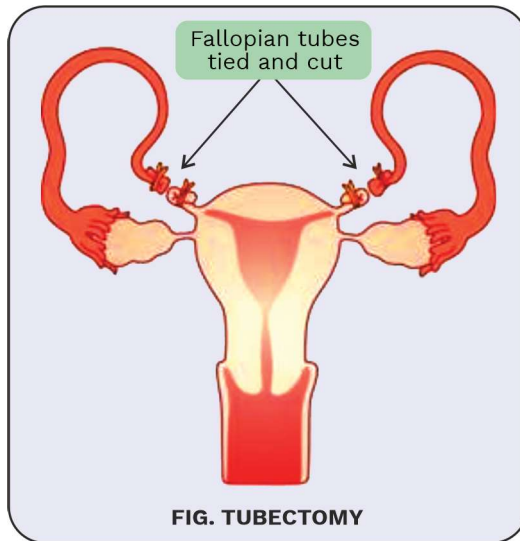
It has few side effects and contraceptive value is high.

Developed by the scientists of Central Drug Research Institute (CDRI) in Lucknow, India. Saheli was renamed 'Chhaya' in 2017.



### SURGICAL METHODS

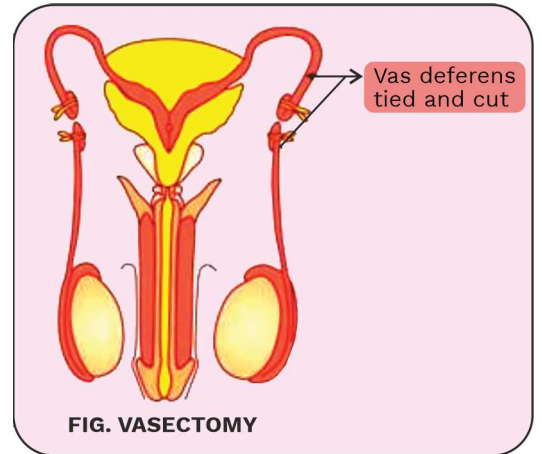
- These are terminal methods that are advised for the male or female partners to prevent any further pregnancy and are commonly called sterilisation.
- Surgical methods cut off the transport of gametes. Thus, conception is forever ceased.
- **Vasectomy**
  - It is the sterilisation procedure in males, where a small portion of the vas deferens is removed or tied up, through an incision in the scrotum.
- **Tubectomy**
  - It is the sterilisation procedure in females, where a small part of fallopian tube is removed or tied up, through a small incision in the abdomen or through vagina.



- **Advantage and Disadvantage of Surgical Methods**
  - Most effective contraceptive techniques
  - Percentage of reversibility is very poor.

### MEDICAL TERMINATION OF PREGNANCY (MTP)

- Voluntary or intentional termination of pregnancy before its complete term is known as medical termination of pregnancy or induced abortion.
- MTP is considered indispensable where pregnancy



#### Definition

**Vasectomy:** Sterilisation in males by ligation of vas deferens is called vasectomy.

**Tubectomy:** Sterilisation in females by ligation of fallopian tube, is called tubectomy.

#### Rack Your Brain



Why is vasectomy not an ideal contraceptive method? Give one reason.

#### Definition

**MTP:** Intentional or voluntary termination of pregnancy before full term is called medical termination of pregnancy or induced abortion.

could be dangerous to the mother of the fetus or both in some cases.

- MTPs are considered to be safe only during the first trimester (i.e., upto 12 weeks of pregnancy) whereas MTPs, during the second trimester could be subject to risk.

**Note:** The government of India legalized medical termination of pregnancy in 1971, only with strict conditions to avoid its misuse, especially on the grounds of gender discrimination and illegal female foeticides.

### SEXUALLY TRANSMITTED DISEASES (STDs) [VENEREAL DISEASES (VDs)]

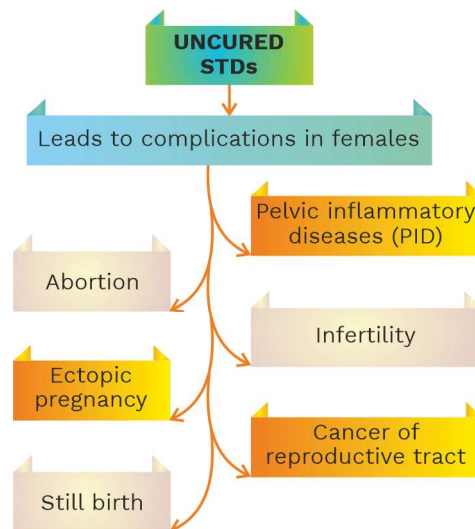
Disease	Causative Agent	Symptoms
<b>Curable Sexually Transmitted Diseases</b>		
Gonorrhoea	Bacterium ( <i>Neisseria gonorrhoea</i> )	Painful urination, pain around urethra.
Syphilis	Bacterium <i>Treponema pallidum</i>	Itching, fluid discharge, pain in urinogenital tract.
Chlamydiosis	Bacterium ( <i>Chlamydia</i> )	Painful urination and intercourse, mucus discharge from penis or vagina
Genital warts	Virus (Human papilloma)	Warts over external genitalia, vagina, and cervix, etc.
Trichomoniasis (Vaginitis)	Protozoa ( <i>Trichomonas vaginalis</i> )	In female's inflammation, itching and whitish frothy vaginal discharge (leucorrhoea). Males remain asymptomatic but occasionally painful swelling occur in seminal vesicles and prostate gland.
<b>Incurable Sexually Transmitted Diseases</b>		
Acquired Immuno Deficiency Syndrome (AIDS)	Human immunodeficiency virus (HIV)	Fever, weakness, infections, and cancer.
Genital herpes	Virus (Herpes simplex virus) Type I or II	Reddish ulcers over external genitalia, vaginal discharge.
Hepatitis B	Hepatitis B virus (Virus)	Fatigue, persistent low-grade fever, jaundice, rash, and abdominal pain.



- Transmittable diseases or infections that are passed on by sexual intercourse are known as **venereal diseases** (VDs) or **reproductive tract infections** (RTIs) or **sexually transmitted diseases** (STDs)
- These diseases are reported high among individuals of age group of 15–24 years.
- The early general symptoms of STDs include the following in the genital region:
  - **Itching**
  - **Fluid discharge**
  - **Slight pain**
  - **Swellings**
- The infected persons do not seek medical help for the following reasons:
  - Absence or appearance of less significant symptoms in the early stages of infection.
  - Social stigma associated with STDs.
- Three viral infections, AIDS (Acquired Immuno-deficiency Syndrome), genital herpes and Hepatitis B cannot be cured, while the others are curable STDs.
- These infections could be avoided or prevented by the following practices:
  - **Avoiding sex with unknown or many partners.**
  - **Use of condoms every time while engaging in coitus.**
  - **Seeking medical help in case of any doubt and getting it completely cured.**

### INFERTILITY

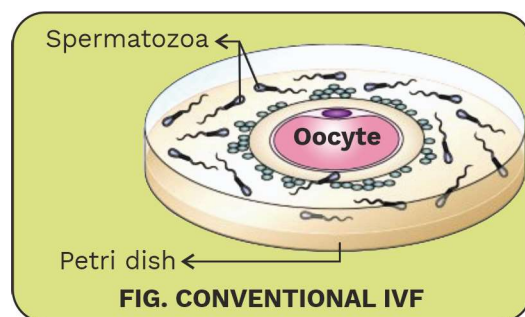
- The inability of a couple to produce children in spite of unprotected sexual or cohabitation is known as infertility
- Grounds for infertility could be use of a particular drug physical, congenital, diseases, immunological response or even psychological.
- Specialized health care units are capable of diagnosing the issue are known as infertility clinics. The clinics provide consultations to



### Gray Matter Alert!!!

#### Ectopic Pregnancy

A pregnancy in which the fertilised egg implants outside the uterus. The fertilised egg can't survive outside the uterus.



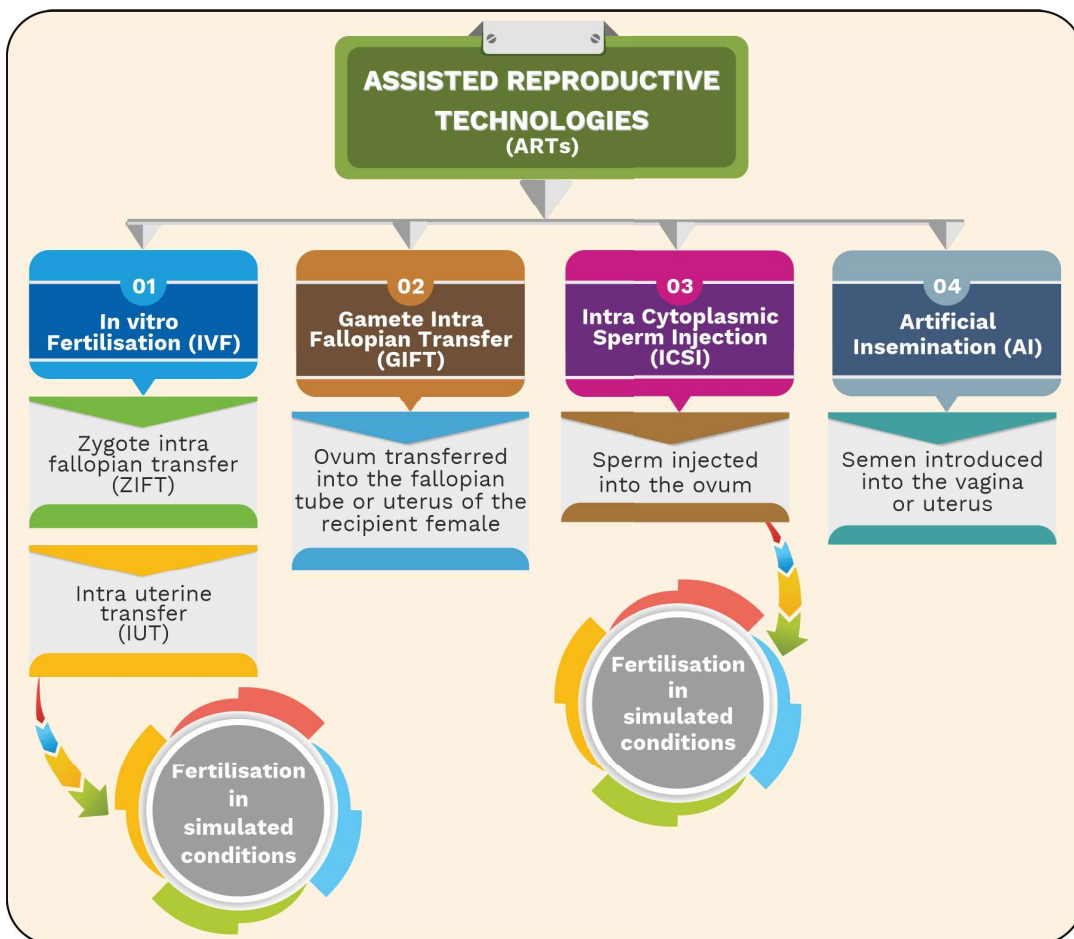
couples regarding corrective treatment for many of the above mentioned infertility issues.

**ASSISTED REPRODUCTIVE TECHNIQUES (ARTS)**

- Special techniques are applied to assist the sterile couple (man or woman) produce children when the issue cannot be solved by the corrective treatments are known as called Assisted Reproductive Technologies (ARTs)

**Gray Matter Alert!!!**

The first successful case of IVF-ET technique was reported by Patrick Steptoe and Robert Edwards.



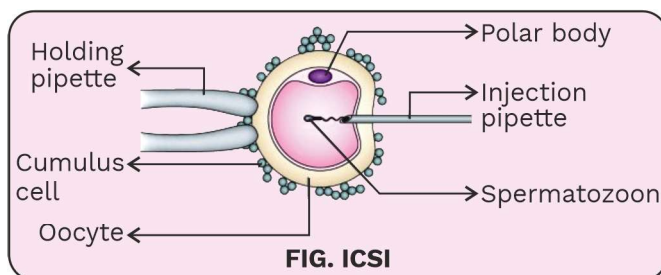
**Test Tube Baby Programme**

- In this procedure , the sperms from the male or a donor and ova from the partner or a donor female is allowed to fuse in the laboratory under simulated conditions (as that of the body),it is



known as in vitro fertilisation (**IVF**).

- The nascent embryo or the zygote is relocated into the fallopian tube of the uterus of the female for further development. This is commonly known as **Embryo Transfer (ET)**.
- There are two ways of embryo transfer:
  - **Zygote Embryo Transfer (ZIFT)**
    - ◆ The process of transferring zygote or embryo up to eight blastomeres stage into the fallopian tube.
  - **Intra Uterine Transfer (IUT)** The process of transferring embryos with more than eight blastomeres stage into the uterus as it is ready for implantation.
- **Gamete Intra Fallopian Transfer (GIFT)**
  - This procedure requires the translocation of an ovum is harvested from a donor female into the receptor female, who incapable of producing ovum, but can provide adequate environment for the fertilization of gametes and further development of the foetus up to parturition.
- **Intra Cytoplasmic Sperm Injection (ICSI)**
  - This procedure requires the sperm to be directly inoculated into the ovum giving rise to an embryo in the lab followed by the transfer of embryo.



- **Artificial Insemination (AI)**
  - This procedure requires the collection of semen from the husband or a healthy male donor and artificially inoculation of semen into the vagina or into the uterus of the

### Definition

**In vitro fertilisation:** *In vitro* fertilisation refers to the fusion of gametes (fertilisation) outside the body in almost similar conditions as that of the body in the laboratory (vitreous-glass, fusion in glass tubes or dishes).



### Previous Year's Question

After induced fertilisation of the ovum in the laboratory ....is transferred into the uterus.

- (1) Embryo at 4 blastomeres stage
- (2) Embryo at 2 blastomeres stage
- (3) Morula
- (4) Zygote



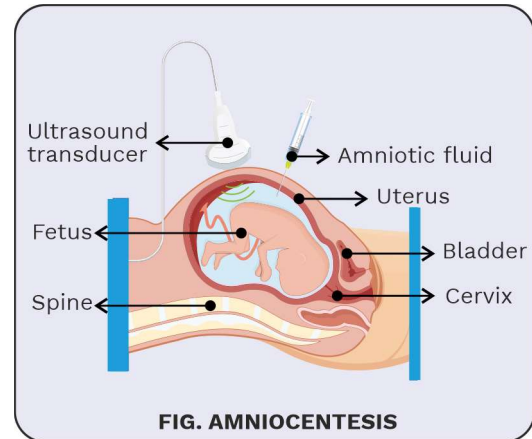
female and is also called **intra uterine insemination (IUI)**.

- This procedure is applied where infertility is due to the incapacity of the male partner to inseminate the female or due to decreased sperm counts in the ejaculates.

### AMNIOCENTESIS

- It is a prenatal diagnostic technique which includes the sample collection amniotic fluid from the womb of a pregnant female. It is mostly procured during the early stages of foetal development and the cells are cultured and analyzed.
- **Clinical Use of Amniocentesis**
  - By the means of this procedure, the chromosomal disorders, the sex of the foetus and embryological developmental disorders could be detected for the treatment. Since, it is often misused for gender discrimination and eliminating the normal female foetus. The government has introduced a statutory ban on this technique to legitimately monitor female foeticides.
  - By aminocentesis following genetic diseases can be detected—
    - ◆ **Down's syndrome**
    - ◆ **Sickle cell disease**
    - ◆ **Cystic fibrosis**
    - ◆ **Muscular dystrophy**
    - ◆ **Tay-Sachs disease, etc.**

**Note**—Sex can be determined by this technique and is misused for destroying the normal female foetuses. Thus there is a statutory ban on this technique to legally check female foeticides.



### Rack Your Brain

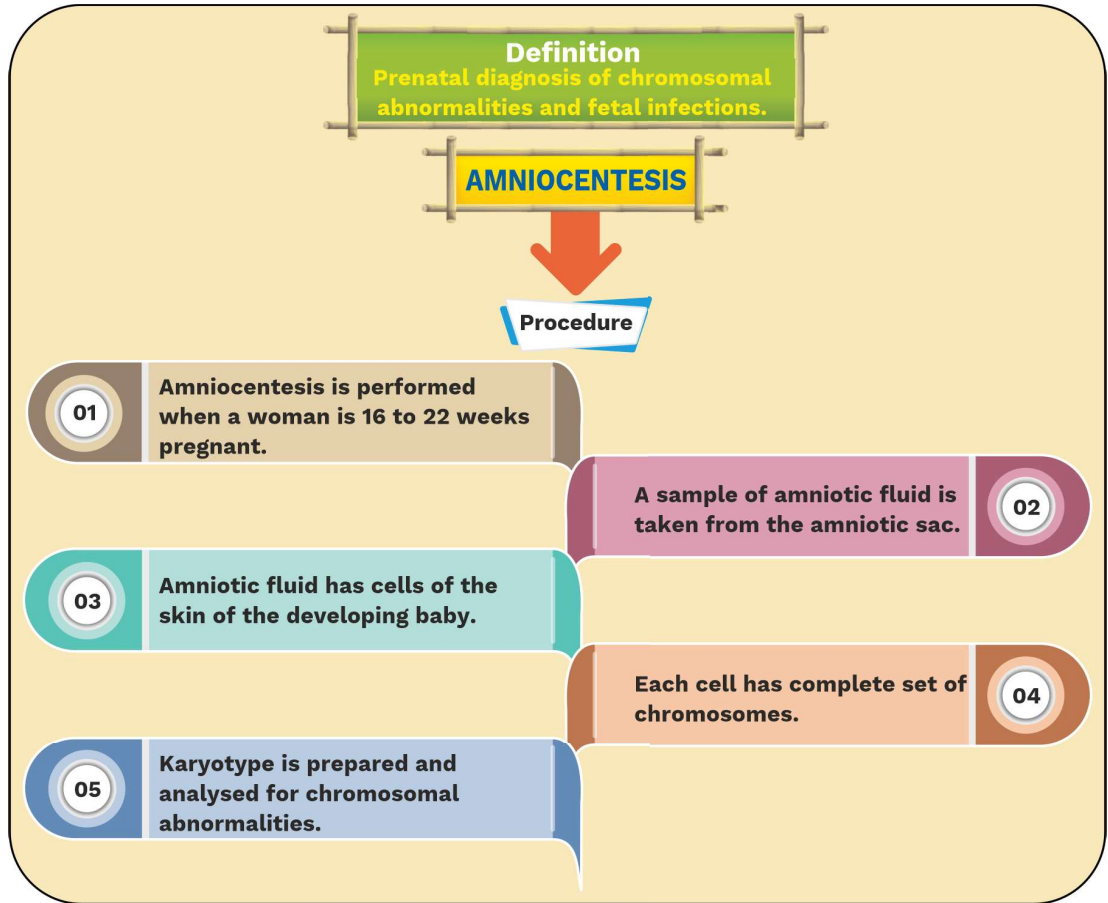


Name the technique used to detect prenatal defects in the foetus.

### Rack Your Brain

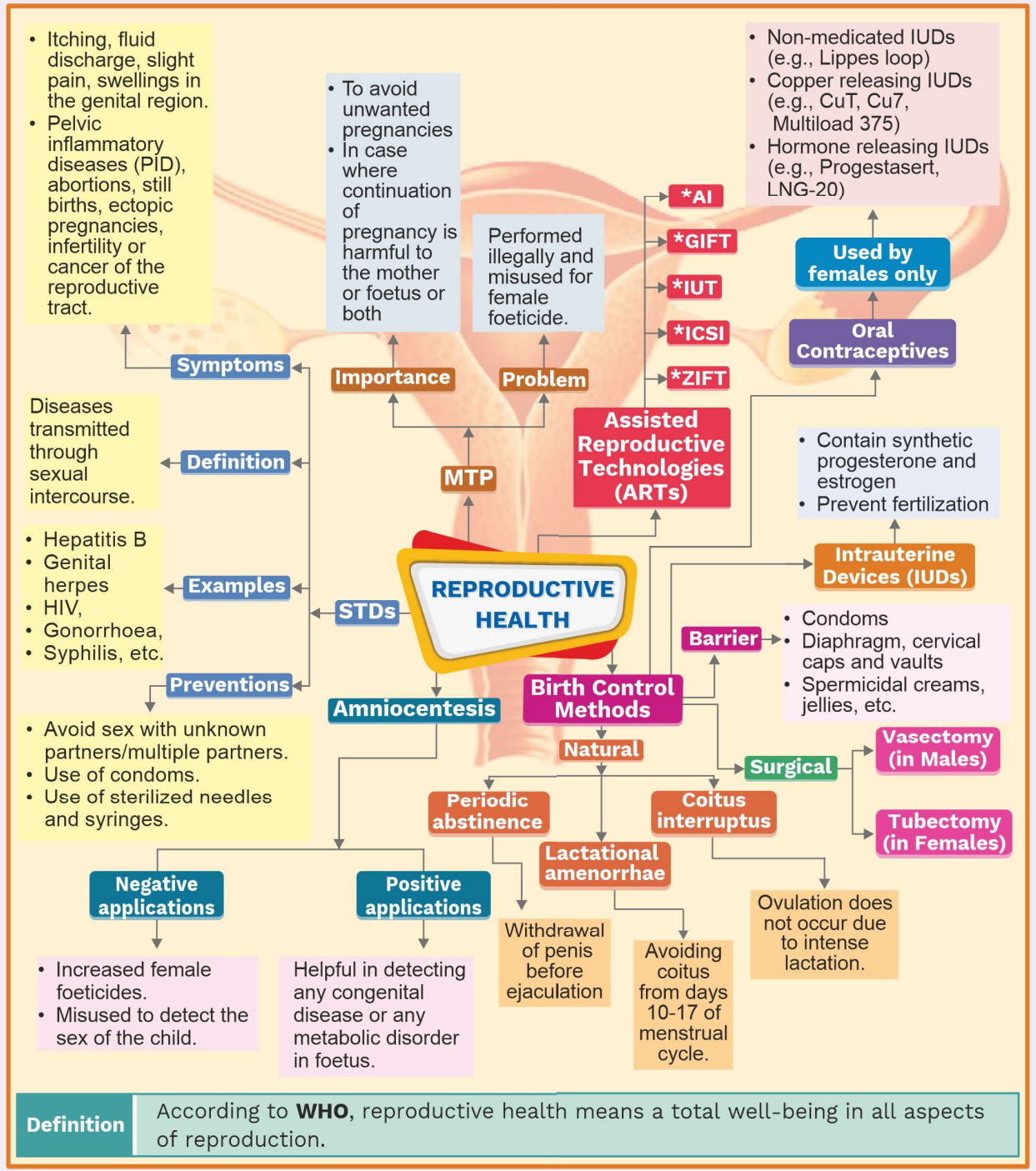


Why there is a statutory ban on amniocentesis?





## Summary



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## Solved Exercise

**Q1** A technique GIFT is used to assist childless couple to have a child .The full form of the technique is

- (1) Gamete Internal Fertilisation and Transfer
- (2) Germ cell Internal Fallopian Transfer
- (3) Gamete Inseminated Fallopian Transfer
- (4) Gamete Intra Fallopian Transfer

**A1**

(4)

GIFT is gamete intra fallopian transfer, it is a type of assisted reproductive technology in which ovum from the donor female is inserted in the body of another female who cannot produce ova but has a healthy fallopian tube and uterus for fertilisation and development of the embryo.

**Q2** In a population, unrestricted reproductive capacity is called as —

- (1) Biotic potential
- (2) Fertility rate
- (3) Carrying capacity
- (4) Birth rate

**A2**

(2)

The total fertility rate in a specific year is defined as the total number of children that would be born to each woman if she were to live to the end of her child-bearing years and give birth to children.

**Q3** What is the work of copper-T?

- (1) To inhibit ovulation
- (2) To inhibit fertilisation
- (3) To inhibit gametogenesis
- (4) None of these

**A3**

(2)

Copper-T is releasing intra uterine devices (IUD) releasing copper. It inhibits fertilization. It is inserted in the uterus by a physician. Copper ions released by the device increase phagocytosis of sperms within the uterus and suppress sperm motility and fertilising capacity of sperms.



- 
- Q4** **What is the work of progesterone which is present in oral contraceptive pills?**
- (1) To inhibit ovulation**
  - (2) To check oogenesis**
  - (3) To check entry of sperms into the cervix and to make them inactive**
  - (4) To check sexual behaviour**

- A4** **(1)**  
Oral contraceptives or birth-control pills are used to prevent pregnancy. It prevents ovulation and changes the cervical mucus and the lining of the uterus.

- Q5** **Test tube baby develops**
- (1) In a test tube**
  - (2) Through tissue culture method**
  - (3) From the ovum that is fertilised externally and thereafter implanted in the uterus**
  - (4) From a non—fertilised ovum**

- A5** **(3)**  
Test tube baby means that the ovum is fertilised by the sperms in simulated conditions and when it becomes 8 more than 8 celled embryo then it is implanted either in the fallopian tube or uterus, respectively.

- Q6** **The technique amniocentesis can be legally used**
- (1) For detecting sex of the unborn foetus**
  - (2) For artificial insemination**
  - (3) For transfer of the embryo into the uterus of a surrogate mother**
  - (4) For detecting any genetic abnormality**

- A6** **(4)**  
It is prenatal diagnostic technique in which a sample of amniotic fluid from the womb of a pregnant woman. The fluid contains cells of the skin of the foetus and the chromosomes from the cells is used to detect the possibility of genetic abnormality.



- 
- Q7** Which of the following is not a sexually transmitted disease?  
(1) Trichomoniasis  
(2) Encephalitis  
(3) Syphilis  
(4) Acquired Immuno Deficiency Syndrome (AIDS)

**A7** (2)  
Virus causes Encephalitis and it is not a sexually transmitted disease.

- Q8** Embryo with more than 16 blastomeres formed due to in vitro fertilisation is transferred into—  
(1) Uterus  
(2) Fallopian tube  
(3) Fimbriae  
(4) Cervix

**A8** (1)  
An embryo with more than 16 blastomeres formed due to in vitro fertilization is transferred into the uterus.

- Q9** In case of a couple where the male is unable to inseminate her wife but has good sperm count which technique will be suitable for fertilisation?  
(1) Gamete intracytoplasmic fallopian transfer  
(2) Artificial Insemination  
(3) Intra cytoplasmic sperm injection  
(4) Intrauterine transfer

**A9** (2)  
Artificial insemination means that the semen is administered into the vagina or uterus of the female. It is preferred in the case when a man is unable to inseminate her wife.



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**Q10** In the context of amniocentesis, which of the following statements is incorrect?

- (1) It can be used for the detection of Down's syndrome.
- (2) Used for the detection of the disorder cleft palate.
- (3) Done when a woman is between 14-16 weeks pregnant.
- (4) It is used for the prenatal sex determination.

**A10** (2)

Cleft palate can be detected by ultrasound and does not require any specific diagnostic technique.











