



# Collegedunia NCERT Formula Sheet

*The Quick Revision Reference for Class 12 Biology (NCERT 2026-27 / Latest Edition)*

## Chapter 3: Reproductive Health

Key Facts | Definitions | Classification Tables | NEET Extensions

Also see for this chapter: [NCERT Solutions](#) | [Revision Notes](#) | [Exemplar Solutions](#)

### Key Numerical Facts — Reproductive Health

<b>Fertile period (periodic abstinence)</b>	Days <b>10–17</b> of the menstrual cycle (ovulation expected)
<b>Lactational amenorrhea — effective for</b>	Up to a maximum of <b>6 months</b> after parturition
<b>Oral pill schedule</b>	Daily for <b>21 days</b> , then <b>7-day</b> gap (menstruation), repeat
<b>Emergency contraception window</b>	Within <b>72 hours</b> of coitus
<b>MTP — relatively safe</b>	Within first <b>12 weeks</b> (first trimester)
<b>MTP Act 2017 — single doctor</b>	Up to <b>12 weeks</b> of pregnancy
<b>MTP Act 2017 — two doctors</b>	<b>12 to 24 weeks</b> of pregnancy
<b>Global MTPs per year</b>	<b>45–50 million</b> ( $\approx$ 1/5 of conceived pregnancies)
<b>Statutory marriageable age</b>	Female <b>18 yr</b> , Male <b>21 yr</b>
<b>ZIFT / IUT embryo split</b>	Up to <b>8 blastomeres</b> → fallopian tube; more than 8 → uterus
<b>Population growth rate (2011)</b>	< 2%, i.e. <b>20 / 1000 / year</b>
<b>Highest STI incidence age group</b>	<b>15–24 years</b>
<b>India family planning launched</b>	Year <b>1951</b> ; MTP legalised <b>1971</b>

This chapter has no algebraic formulas — it is a concept and definitions chapter. This sheet condenses every NCERT subsection into compact “definition + key-fact” boxes and quick-recall tables so the whole chapter can be revised in minutes before NEET or the board exam.

## 1 3.1 Reproductive Health: Problems & Strategies

This section gathers the definition of reproductive health, the national programmes, the strategies used to achieve it, and the legal safeguard against sex-selective abuse.

### Reproductive health — definition

**WHO definition:** total well-being in **all** aspects of reproduction — physical, emotional, behavioural and social.

Not merely “healthy reproductive organs”: it includes emotional and social well-being. India was the **first country** to launch national-level reproductive-health action plans.

### Family planning & RCH

Family planning launched in India: **1951**

Now run as the **RCH** (Reproductive and Child Health Care) programmes.

Major tasks: **create awareness** about reproduction-related aspects and **provide facilities** for a reproductively healthy society.

### Strategies to achieve reproductive health

- **Awareness** via audio-visual and print media; role of parents, teachers, friends.
- **Sex education** in schools — removes myths and misconceptions.
- Education on **birth control**, care of pregnant mothers, post-natal care, breastfeeding, equal opportunity for the girl child.
- Strong **infrastructure**, professional expertise and material support for delivery, STDs, contraception, infertility, etc.
- Statutory **ban on amniocentesis** for sex-determination; massive child immunisation.

### Amniocentesis

A foetal sex-determination test: a sample of **amniotic fluid** is drawn to analyse foetal cells and dissolved substances. Legitimately detects genetic disorders (Down syndrome, haemophilia, sickle-cell anaemia). **Legally banned** for sex determination to curb female foeticide.

### Improved reproductive health

Better sex awareness; more **medically assisted deliveries**; better post-natal care; **decreased** maternal (MMR) & infant (IMR) mortality; more small families; better STD detection/cure.

**Saheli** — a non-steroidal “once a week” oral contraceptive — was developed at **CDRI, Lucknow**.

## 2 3.2 Population Stabilisation & Birth Control

This section covers the population-explosion data, government measures, the ideal-contraceptive criteria, and every contraceptive category with its mode of action.

### Population explosion — key data

World:  $\approx$  **2 billion** (1900)  $\rightarrow$  **6 billion** (2000)  $\rightarrow$  **7.2 billion** (2011).

India:  $\approx$  350 million (independence)  $\rightarrow$   $\approx$  1 billion (2000)  $\rightarrow$  **1.2 billion** (May 2011).

Growth rate (2011 census):  $<$  **2%** = **20/1000/year**.

Causes: rapid decline in **death rate, MMR and IMR**, and a rise in people of reproductive age.

### Population-control measures

Slogan **“Hum Do Hamare Do”**; “one child norm”.

Statutory marriageable age: **female 18 yr, male 21 yr**.

Incentives to couples with small families.

Most important step: motivate **smaller families** through contraceptive methods.

### An ideal contraceptive

Should be **user-friendly**, easily **available**, **effective** and **reversible**, with no or least side-effects, and must not interfere with sexual drive or the sexual act.

### Natural / Traditional methods

Principle: **avoid ovum-sperm meeting**; no devices/medicines (side-effects nil, failure high).

- **Periodic abstinence:** no coitus on **days 10–17** (fertile period).
- **Withdrawal / coitus interruptus:** penis withdrawn before ejaculation.
- **Lactational amenorrhea:** no ovulation during intense lactation; effective up to **6 months** post-partum.

Work by preventing fertilisation, not by altering hormones.

### Barrier methods

Ovum and sperm **physically blocked** from meeting.

- **Condoms** (male/female, e.g. "Nirodh"): thin rubber/latex sheath; **also protect against STIs and AIDS**; disposable, self-inserted.
- **Diaphragms, cervical caps, vaults:** rubber barriers covering the cervix; reusable.

**Spermicidal** creams/jellies/foams are used with barriers to raise efficiency.

### Intra Uterine Devices (IUDs)

Inserted in the uterus by doctors/expert nurses. Types:

- **Non-medicated:** Lippes loop.
- **Copper-releasing:** CuT, Cu7, Multi-load 375.
- **Hormone-releasing:** Progestasert, LNG-20.

Action: increase **phagocytosis of sperms**;  $\text{Cu}^{2+}$  ions suppress sperm motility/fertilising capacity; hormonal types make the uterus unsuitable for implantation. Ideal to **delay/space** children.

### Oral pills, injectables & implants

**Pills:** progestogens or progestogen-estrogen; **21 days** on, **7-day** gap, repeat.

Action: inhibit **ovulation** & implantation; alter cervical mucus.

**Saheli:** non-steroidal "once a week" pill.

**Injectables / implants:** progestogen  $\pm$  estrogen under skin; same action, **longer** effective period.

**Emergency contraceptive:** progestogen / progestogen-estrogen / IUD within **72 hr** of coitus.

### Surgical methods (sterilisation)

Terminal method — blocks **gamete transport**.

- **Vasectomy (male):** part of **vas deferens** cut/tied via scrotal incision.
- **Tubectomy (female):** part of **fallopian tube** cut/tied via abdominal/vaginal incision.

Highly effective but **reversibility is very poor**.

### Sterilisation does NOT stop gamete formation

Vasectomy/tubectomy only **block gamete transport** — gametes are still produced in the gonads. Removal of gonads is **not** a contraceptive option (it abolishes hormones and is irreversible mutilation).

**Contraceptives are not health requirements**

Contraceptives are practised **against** a natural event (conception); they are not regular requirements for reproductive health. Possible ill-effects: nausea, abdom-

inal pain, breakthrough/irregular bleeding, rarely breast cancer.

**3 3.3 Medical Termination of Pregnancy (MTP)**

This section covers the definition of MTP, why and when it is done, the global numbers, the legal framework, and the female-foeticide misuse.

**MTP — definition & data**

**MTP** (induced abortion): intentional/voluntary termination of pregnancy before full term.

World: **45–50 million** MTPs/year  $\approx$  **1/5** of conceived pregnancies.

Legalised in India: **1971** (with strict conditions).

Safe in the **first trimester (up to 12 weeks)**; second-trimester abortions are far riskier.

**Why MTP is performed**

To remove **unwanted pregnancies** (unprotected coitus, contraceptive failure, rape), and when continued pregnancy is **harmful or fatal** to the mother or foetus.

**MTP (Amendment) Act, 2017**

Up to **12 weeks**: opinion of **one** registered medical practitioner.

**12–24 weeks**: opinion of **two** registered medical practitioners (good-faith grounds).

Aim: reduce illegal abortions and the resulting maternal mortality & morbidity.

**Misuse of amniocentesis**

A dangerous trend: amniocentesis misused to determine foetal sex, followed by MTP of female foetuses — this is **illegal**. Effective counselling and more health-care facilities can reverse it.

**4 3.4 Sexually Transmitted Infections (STIs)**

This section covers STI nomenclature, the list of common infections, transmission routes, complications, and prevention.

**STI — definition & names**

Infections transmitted through sexual intercourse = **STI** = venereal disease (VD) = reproductive tract infection (RTI).

Common: **gonorrhoea, syphilis, genital herpes, chlamydia, genital warts, trichomoniasis, hepatitis-B, HIV (AIDS)**.

**HIV** is the most dangerous (detailed in Chapter 7).

**Transmission & curability**

Hepatitis-B and HIV also spread via **shared needles, surgical instruments, blood transfusion, infected mother → foetus**. All STIs are curable if detected early **except hepatitis-B, genital herpes and HIV**.

**Symptoms & complications**

Early signs (often minor): itching, fluid discharge, slight pain, swellings in the genital region. Females are often **asymptomatic**.

Complications: **PID** (pelvic inflammatory disease), abortion, still-birth, **ectopic pregnancy**, infertility, cancer of the reproductive tract. Highest incidence at **15–24 yr**.

**Prevention of STIs — 3 rules**

- (i) Avoid sex with **unknown / multiple** partners.
- (ii) Always use a **condom** during coitus.
- (iii) In doubt, consult a qualified doctor for **early detection** and complete

treatment.

Prevention is possible — no reason to panic.

**GIFT, ICSI & AI / IUI**

**GIFT** (Gamete Intra Fallopian Transfer): donor **ovum** → fallopian tube of a female who cannot produce one.

**ICSI** (Intra Cytoplasmic Sperm Injection): a **sperm injected directly into the ovum**.

**AI** (Artificial Insemination) / **IUI**: semen introduced into the vagina or uterus; for low sperm count / inability to inseminate.

ART needs high precision & costly instrumentation; **legal adoption** remains one of the best options.

## 5 3.5 Infertility & Assisted Reproductive Technologies

This section covers the definition of infertility, its causes, and every ART technique with the exact site of transfer or injection.

**Infertility — definition**

Inability to conceive / produce children despite **2 years** of unprotected sexual cohabitation.

Causes: physical, congenital, diseases, drugs, immunological, psychological.

Often wrongly blamed on the female; the defect frequently lies in the **male** partner.

ART = **Assisted Reproductive Technologies**.

**IVF, ZIFT & IUT (Test-Tube Baby)**

**IVF**: fertilisation **outside** the body → **embryo transfer (ET)**.

**ZIFT** (Zygote Intra Fallopian Transfer): zygote / early embryo up to **8 blastomeres** → **fallopian tube**.

**IUT** (Intra Uterine Transfer): embryo > **8 blastomeres** → **uterus**.

“Test-tube baby” programme = IVF + ET.

**ART transfer sites — “Z to tube, I to uterus”**

**ZIFT** → fallopian **tube** (zygote, ≤ 8 cells).  
**IUT** → **uterus** (embryo, > 8 cells). **GIFT** moves a **Gamete** (ovum). **ICSI** = sperm Inside **Cytoplasm**.

**NEET Extension — frequently asked one-liners**

- Saheli developed at **CDRI Lucknow**; non-steroidal, weekly.
- Copper IUDs release **Cu<sup>2+</sup>** → spermicidal.
- Lactational amenorrhoea works because high **prolactin** suppresses ovulation.
- Emergency pill within **72 hr**; “morning-after” = high-dose progestogen.
- Amniocentesis = foetal karyotyping from **amniotic fluid**.

[Read the Full Revision Notes](#) □

## Quick Reference Summary

Class 12 Biology — Chapter 3 Reproductive Health

Term	One-line recall
Reproductive health	Total well-being — physical, emotional, behavioural, social (WHO)
RCH programme	Reproductive and Child Health Care; awareness + facilities
Amniocentesis	Foetal test from amniotic fluid; banned for sex determination
Periodic abstinence	No coitus days 10–17 (fertile period)
Lactational amenorrhea	No ovulation during lactation; $\leq 6$ months post-partum
Coitus interruptus	Withdrawal before ejaculation
Condom	Barrier; also prevents STIs/AIDS; “Nirodh”
Diaphragm/cervical cap	Reusable rubber barrier covering cervix
IUDs	Lippes loop / CuT, Cu7, Multiload 375 / Progestasert, LNG-20
Oral pill	21 days on, 7 off; inhibits ovulation; Saheli = weekly
Emergency contraception	Within 72 hr of coitus
Vasectomy	Male; vas deferens cut/tied
Tubectomy	Female; fallopian tube cut/tied
MTP	Induced abortion; legal in India since 1971
MTP Act 2017	$\leq 12$ wk: 1 doctor; 12–24 wk: 2 doctors
STI / VD / RTI	Sexually transmitted infection; HIV most dangerous
PID	Pelvic inflammatory disease (STI complication)
Infertility	No child after 2 yr unprotected cohabitation
IVF + ET	Test-tube baby programme
ZIFT	Zygote/embryo $\leq 8$ cells $\rightarrow$ fallopian tube
IUT	Embryo $> 8$ cells $\rightarrow$ uterus
GIFT	Donor ovum $\rightarrow$ fallopian tube
ICSI	Sperm injected directly into ovum
AI / IUI	Semen introduced into vagina/uterus

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