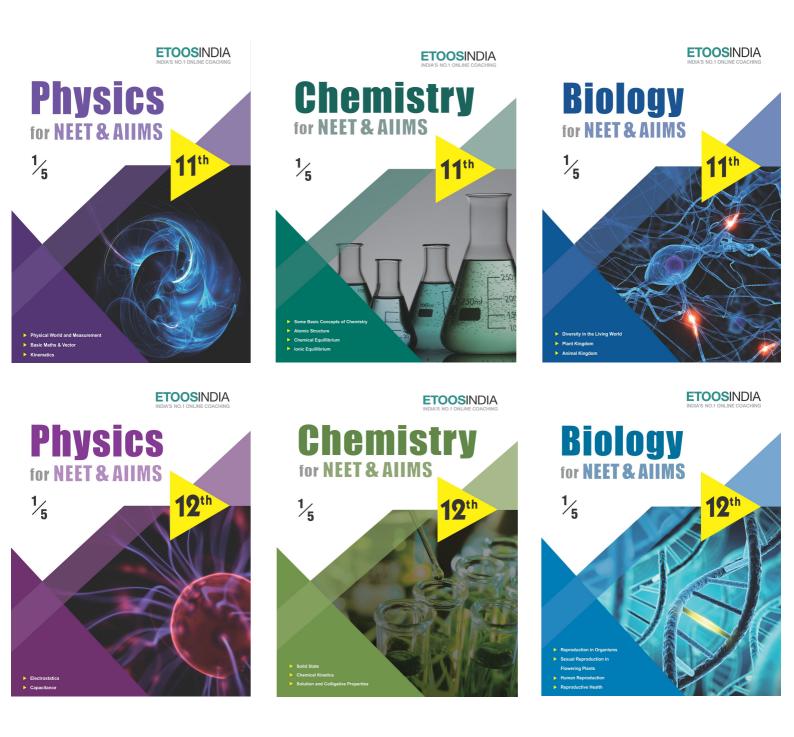
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CHAPTER

$\mathbf{04}$

REPRODUCTIVE HEALTH

"Nothing is constant but change! All existence is a perpetual flux of "being and becoming!" That is the broad lesson of the evolution of the world.".

"ERNST HAECKEL (1834-1919)"

INTRODUCTION

eproductive Health refers to healthy reproductive organs with normal functions. According to WHO (World Health Organisation, reproductive health means well being in physical, emotional, behavioural and social aspects of reproduction. Therefore, reproductively, a healthy society comprises of people having physically and functionally normal reproductive organs and normal emotional and behavioural interactions among them in all sex-related aspects. This chapter deals with the problems and strategies for reproductive health, various options of contraception, knowledge of sexually transmitted diseases, causes and remedy of infertility and assisted reproductive teachnologies.

In this chapter you will also see that various methods are now available to help couples who have problem in conceiving. In vitro fertilisation followed by transfer of embryo into the female genital tract is one such method and is commonly known as the "Test Tube baby" Programme.

REPRODUCTIVE HEALTH

Reproductive Health

- Reproductive Health means the health of reproductive organs with its normal functions and also it includes the emotional & social aspects of reproduction.
- According to WHO, reproductive health means a total well-being in all aspects of reproduction, i.e. physical, emotional, behavioural & social. 'Family Planning Programmes' were initiated in 1951.
- India was the first nation in the world to initiate various action plans at national level towards attaining a reproductively healthy society.
- Reproductive & Child Health Care (RCH) is currently in operation.
- Counselling and creating awareness among people about reproductive organs, adolescence and associated changes, safe and hygienic sexual practices, sexually transmitted diseases (STD's) including AIDS etc. is the primary step towards reproductive health.
- Its main aspect is to provide medical facilities and care to the problems like menstrual irregularities, pregnancy related aspects, delivery, medical termination of pregnancy, STD's, birth control, infertility, post natal child and maternal management.

Methods of contraception

An ideal contraceptive should be user-friendly, easily available, effective and reversible with no or least side-effects. It also should in no way interfere with the sexual drive, desire and/or the sexual act of the user. A wide range of contraceptive methods are presently available which could be broadly grouped into the following categories, namely Natural/Traditional, Barrier, IUDs, Oral contraceptives, Injectables, Implants and Surgical methods.

(1) Natural methods :

work on the principle of avoiding chances of ovum and sperms meeting. **Periodic abstinence** is one such method in which the couples avoid or abstain from coitus from day 10 to 17 of the menstrual cycle when ovulation could be expected. As chances of fertilisation are very high during this period, it is called the fertile period. Therefore, by abstaining from coitus during this period, conception could be prevented.

Withdrawal or coitus interruptus is another method in which the male partner withdraws his penis from the vagina just before ejaculation so as to avoid insemination.

Lactational amenorrhea (absence of menstruation) method is based on the fact that ovulation and therefore the cycle do not occur during the period of intense lactation following parturition. Therefore, as long as the mother breast-feeds the child fully, chances of conception are almost nil. However, this method has been reported to be effective only upto a maximum period of six months following parturition. As no medicines or devices are used in these methods, side effects are almost nil. Chances of failure, though, of this method are also high.

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 \rightarrow Population explosion and Birth control Growth of population. Increased health facilities & better living conditions. World population

 1900
 2 billion

 2000
 6 billion

India

1947 - 35 crore (350 million)

- \rightarrow May 2000 1 billion (Every sixth person is an Indian) Probable reason :
 - (1) Rapid decline in death rate
 - (2) MMR (Maternal mortality rate)
 - (3) IMR (Infant mortality rate)
 - (4) Increase in number of people in reproducible age

 \rightarrow RCH programme (Reproductive & child health care) :

 \rightarrow Bring down the population growth rate it was only marginal.

Census – Population growth rate

2001 – 1.7% (17/1000/year)

(Rate at which over population could double in 33 years)

- \rightarrow This alarming growth rate lead to scarcity of food, shelter, Clothing.
- → Types of Contraceptive methods : Natural / Traditional Barrier Oral contraceptives Implants Surgical methods.

Natural method :

- \rightarrow Periodic abstience Avoiding coitus during unsafe period
- → Withdrawal coitus interruptus Withdrawal of penis from vagina just before ejaculation. Lactational amenorrhea This method is effective only upto a maximum period of six month following parturition.

Barrier method :

- \rightarrow Condom : Made up of latex sheath (Both male and female condom)
- \rightarrow It is used to cover penis & ejaculate semen remain in condom & not enter in female reproductive tract.
- \rightarrow Diaphram, cervical cap and vaults : are made up rubber, used to cover the cervix during coitus.
- \rightarrow Intra uterine device (IUD):
- \rightarrow Non medicated IUDs (Lippes loop) Increase phagocytosis of sperms within the uterus.
- → Copper releasing IUDs (CUT, CU7, Multiload 375) Suppress sperm motility.
- → Hormone releasing IUDs (Progestasert, LNG 20) Make uterus unsuitable for implantation & cervix hostile to sperm.
- \rightarrow Oral contraceptive pills (OCP):
- → Contain small doses of either Progesterone- estrogen combination inhibit ovulation. Daily pills Male D, Mala N (Taken daily from 5th day to 21 days after gap of 7 days again repeated) Weekly pill Saheli / Centachroman (Non steroidal, very fews sideffect) and high contraceptive value.
- \rightarrow Injection or Implants : Mode of action is similar to pills effective is much longer.
- \rightarrow Surgical method / Terminal method :

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REPRODUCTIVE HEALTH

SOLVED EXAMPLE

Sol.

Ex.5

- Ex.1 The term 'Health' is defined in many ways. The most Ex.4 accurate definition of the health would be
 - (A) Health is the state of body and mind in a balanced condition
 - (B) Health is the reflection of a smiling face
 - (C) Health is a state of complete physical, mental and social well-being
 - (D) Health is the symbol of economic prosperity.
- **Sol.** (C) : World Health Organisation (W.H.O) has defined reproductive health as a total well being in physical, emotional, behavioural and social aspects of reproduction.
- **Ex.2** The sexually transmitted disease, that can affect both the male and the female genitals and may damage the eyes of babies born of infected mothers is

Or

It is a disease which mainly affects mucous membrane of urinogenital tract. In males, burning feeling on passing urine, after a yellow discharge occurs, that is a accompanied by fever, headache and feeling of illness. Its name is

(A) AIDS	(B) Syphilis
(C) Gonorrhoea	(D) Hepatitis

Sol. (C) : Gonorrhoea is caused by bacterium Neisseria gonorrhoea. The bacterium lives in genital tubes produces pus containing discharge, pain around genitalia and burning sensation during urination. It may lead to arthritis and eye infection in children of gonorrhoea affected mothers. It is spread through sexual contact common toilets and under-clothes.

Ex.3 Which one of the following groups includes are sexually transmitted diseases
(A) AIDS, syphilis, cholera
(B) HIV, malaria, trichomoniasis
(C) Gonorrhoea, hepatitis-B, chlamydiasis
(D) Hepatitis-B, haemophilia, AIDS

Sol. (C) : Sexually Transmitted Diseases (STD) are a group of communicable diseases that are transmitted by sexual contact and caused by wide range of bacterial, viral, protozoal and fungal agents and ectoparasites.

Examples : Gonorrhoea, syphilis, chancroids, Geneital chlamydial infection, Genital Herpes, Hepatitis, AIDS Sol. Trichomoniasis etc. Consider the statements given below regarding contraception and answer as directed thereafter

- A. Medical Termination of Pregnancy (MTP) during first trimester is generally safe
- **B.** Generally chances of conception are nill until mother breast-feeds the infant upto two years
- C. Intrauterine devices like copper-T are effective contraceptives.
- **D.** Contraception pills may be taken upto one week after coitus to prevents conception

Which two of the above statements are correct

(A) A,C	(B)A,B
(C) B,C	(D) C,D
(A)	

- Test tube baby means a baby born when
 - (A) It developes from a non-fertilized egg
 - **(B)** It developes in a test tube

(C) It is developed through tissue culture method(D) The ovum is fertilised externally and thereafter implanted in the uterus

- Sol. (D) : Test tube baby means ovum fertilised outside the mother body and then implanted in uterus for growth and development.
- Ex.6 Cu ions released from copper-releasing Intra Uterine Devices (IUDs)
 - (A) Prevent ovulation
 - (B) Make uterus unsuitable for implantation
 - (C) Increase phagocytosis of sperms
 - (D) Suppress sperm motility
- Sol. (C,D): Intra Uterine Devices (IUDs) are inserted by doctors in the uterus through Vagina. These intra Uterine Device are available as the non-medicated IUDs. (e.g. Lippes, loop) copper releasing IUDs (CµT, Cu7, multiload 375) and the hormone releasing IUDs (Progestasert, LNG-20). IUDs increases phagocytosis of sperm within the uterus and the Cu ions released suppress sperm motility and the fertilizing capacity of sperm.
- Ex.7 From the sexually transmitted diseases mentioned below, identify the one which does not specifically affect the sex organs
 - (A) Ovariectomy

(C) Vasectomy

- (B) Hysterectomy(D) Castration
- (B)

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	Exercise # 1 SINGLE OB.	JECTI	VE NEET LEVEL
1.	Increased IMR and decreased MMR in a population will (A) Cause rapid increase in growth rate (B) Result in decline in growth rate (C) Not cause significant change in growth rate (D) Result in an explosive population/exp	9.	 Which of the following wrongly matched (A) IUI - semen collected from husband or donor is artificially introduced either into the bagina or into the uterus (B) GIFT - transfer of embryos with more than 8 blastomeres into the Fallopian tube (C) ICSI - sperm directly injected into the ovum (D) ZIFT - transfer of embryos with upto 8
2.	A national level approach to build up a reproductively healthy society was taken up in our country in (A) 1950s (B) 1960s (C) 1980s (D) 1990s	10.	 blastomeres into the Fallopian tube (E) IVF - fertilization outside the body in almost similar condition as that in the body Which one of the following is tested by the
3.	 A stable population is one which has got (A) No growth of population in the last decade (B) Constant rate of growth of population in the last decade (C) Slow growth of population in the last decade (D) Growth of 20% in excess than the last decade If India's population is increasing at the rate of 13.6 		 technique of amniocentesis Or The permissible use of the technique amniocentesis is for (A) Biochemical abnormalities in the foetus (B) Errors of metabolism in the foetus (C) Chromosomal abnormalities (genetic abnormality) in the foetus (Karyotype) (D) All of the above
	million per year, then what percentage of total increase in world's population in one calender year is contributed by the Indians (A) 10% (B) 17% (C) 15% (D) 20%	11.	Foetal sex can be determined by examining cellsfrom amniotic fluid by looking for(A) Barr bodies(B) Autosomes(C) Chiasmata(D) Kinetochore
5.	 One of these causes nongonococcal urethritis (A) Treponema pallidum (B) Neisseria gonorrhoeae (C) Chlamydia trachomatis (D) HSV-I 	12.	 The technique called gamete intrafallopian transfer (GIFT) is recommended for those females (A) Whose cervical canal is too narrow to allow passage for the sperms (B) who can not provide suitable environment for fertilisation
6.	 Profuse, yellowish, greenish frothy smelling discharge from vagina is due to infection of (A) Troponema pallidum (B) Chlamydia (C) Trichomonas (D) Neisseria 	13.	 (C) Who can not produce an ovum (D) Who can not retain the foetus inside uterus Which one of the following is the most widely accepted method of contraception in India, as at present
7.	 Which of these is used to control human population (A) Estrogen + progesterone (B) IUCD and MTP (C) Tubectomy and Vasectomy (D) All of these 	14.	 (A) IUDs' (Intra uterine devices) (B) Cervical caps (C) Tubectomy (D) Diaphragms One of the following is not a method of
8.	 What is the function of copper - T (A) Checks mutation (B) Stops fertilization (C) Stops zygote formation (D) Stops oblituation of blastocoel 		 contraception which one (A) Condoms (B) Pills of a combination of oxytocin and vasopressin (C) Lippes loop (D) Tubectomy

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REPRODUCTIVE HEALTH

]	Exercise # 2 SINGLE OB	JECTI	VE AIIMS LEVEL
1.	World health day is celebrated every year on(A) 7th March(B) 7th April(C) 7th July(D) 7th May	10.	Assisted reproductive technology, IVF involves transfer of (A) Zygote into the uterus
2.	Now-a-days India is under which stage of demographic cycle(A) Early expanding (C) Phase of decline(B) Late expanding (D) High stationary		 (B) Embryo with 16 blastomeres into the fallopian tube (C) Ovum into the fallopian tube (D) Zygote into the fallopian tube
3.	The age group in a population are classified by (A) Reproduction rate (C) Age of marriage (D) Sex ratio	11.	Surgical removal or cutting and ligation of the ends of oviduct or small part of the fallopian tube is removed or tied up is known as (A) Tubectomy (B) Oviductomy (C) Vegettering (D) Oversigntering
4.	 'Sex ratio' means (A) Number of males/ 1000 females (B) Number of females/ 1000 males (C) Both (D) Nume 	12.	(C) Vasectomy(D) OvarioctomySurgical removal of testes is known(A) Testectomy(C) Castration(D) None
5.	 (D) None From the sexually transmitted diseases mentioned below, identify the one which does not specifically affect the sex organs. (A) Syphilis (B) AIDS 	13.	Progesterone pill helps in preventing pregnancy by not allowing(A) Ova formation(B) Fertilization(C) Implantation(D) None of these
6.	 (C) Gonorrhoea (D) Genital warts Which of the following is not a sexually transmitted disease (A) Acquired Immuno Deficiency syndrome (AIDS) 	14.	 Surrogate mother is used for (A) Induction of lactation (B) Artificially inseminated female (C) Future mother with transplanted embryo (D) Artificial in semination
	(B) Trichomoniases(C) Encephalitis(D) Syphilis	15.	Surgical removal of uterus is called(A) Vasectomy(B) Tubectomy(C) Hysterectomy(D) Anatomy
7.	Genital warts are due to sexually transmitted disease spread by (A) Herpes virus (B) Papilloma virus (C) Hepatitis A (D) Trichomonas	16.	Which of the following birth control measure can be considered as the safest (A) The rhythm method
8.	Which one of the following correctly matches a sexually transmitted disease with its pathogen (A) Urethritis - Bacillus anthracis		(B) The use of physical barriers(C) Termination of unwanted pregnancy(D) Sterilizatoin techniques
	 (B) Soft sore - Bacillus brevis (C) Syphillis - treponema pallidum (D) Gonorrhoea - Entamoeba histolytica 	17.	The success of birth control programmes in controlling population growth is dependent on (A) Use of contraceptives
9.	Which one of the following statements is correct regarding Sexually Transmitted Diseases (STD) (A) A person may contact syphilis by sharing milk		(B) Tubectomy(C) Vasectomy(D) Acceptability of the above by the people
	with one already suffering from the disease(B) Heamophilia is one of the STD(C) Genital herpes and sickle - cell anaemia are both	18.	Trade name of weekly oral contraceptive pill is(A) Mala(B) Saheli(C) Mala A(D) Mala D
	STD(D) The chances of a 5 year boy contacting a STD are very little	19.	Daily oral contraceptive pill is (A) Mala C (B) Mala N and Mala D (C) Mala A (D) Mala D

	Exercise # 3	PART - 1	MATRIX	MATCH COLUMN	
1.	1. Given below are four methods (A-D) and their modes of action (a-d) in achieving contraception. Select their correct matching from the four options thats follow				
	Method	our options thats follow	Mode of Action		
	A. The pill		i. Prevent sperms reach	ing cervix	
	B. Condom		ii. Prevents implantation	-	
	C. Vasectomy		iii. Prevents ovulation		
	D. Copper T			v. Seman contains no sperms	
	$(\mathbf{A})\mathbf{A} - \mathbf{i}\mathbf{i}\mathbf{i}\mathbf{i}\mathbf{;} \mathbf{B} - \mathbf{i}\mathbf{v}\mathbf{;} \mathbf{C} - \mathbf{i}\mathbf{;}$		(B) A - ii; B - iii; C - i; D - iv		
	(\mathbb{C}) A - iii; B - i; C - iv;	; D - ii	(D) A -iv; B - i; C - ii; D -	iii	
2.	Match the contracept correct choice from t	-	umn I with their examples	given under Column II. Select the	
	Column - I		Column - II		
	A. Chemical		i. Tubectomy and Vased	ctomy	
	B. IUDs		ii. Copper T and Loop		
	C. Barriers		iii. Condom and Cervica	•	
	D. Sterilization		iv. Spermicidal jelly and v. Coitus interruptis and		
	$(\mathbf{A})\mathbf{A}=\mathbf{i}\mathbf{v},\mathbf{B}=\mathbf{i}\mathbf{i},\mathbf{C}=\mathbf{i}$	ii D=i	(B) $A = iv, B = v, C = ii, I$		
	(C)A=i,B=iii,C=i		(D) A = iv, B = ii, C = v, I		
3.					
э.	Column - I	th Column - If and select the c	orrect option from the codes given below. Column - II		
	A. Natural methods		i. Coitus interruptus		
	B. IUDs		ii. LNG - 20		
	C. Barrier methods		iii. Diaphragms		
	D. Surgical methods		iv. Multiload 375		
	E. Oral contraceptive	S	v. Saheli		
			vi. Nirodh		
			vii. Sterilization		
			viii. Vasectomy		
			ix. CuT		
		C - iii, vi; D - vii, viii; E - v C - iii, ix; D - vii, viii; E - v, vi	(B) A - i; B - ii, iv; C - iii, (D) A - i; B - iv, ix; C - ii,		
4.		th Column - II and select the c	-	s given below.	
	Column - I		Column - II	-	
	A. Syphilis B. Chancroid		i. Human papilloma viru		
	C. AIDS		ii. Haemophilus ducreyi iii. Treponema pallidum		
	D. Genital warts		iv. HIV		
	A	В	C	D	
	(A) iii	ü	iv	i	
	(B) ii	i	ü	iv	
	(C) iv	ü	i	ш	
	(D) i	iv	ш	ü	

REPRODUCTIVE HEALTH

Exercise # 4 PART - 1

- 1. Progesterone, which is the most important component of oral contraceptive pils, prevents pregnancy [CBSE AIPMT 2000] by
 - (A) Preventing the formation of egg
 - (B) Preventing the cleavage of the fertilised egg
 - (C) Creating unfavourable chemical environment for the sperms to survive in the female reproductive tract
 - (D) Blocking ovulation
- 2. In a population, unrestricted reproductive [CBSE AIPMT 2002] capacityis called as -(A) Biotic potential **(B)** Fertility (C) Carring capacity (D) Birth rate
- 3. Test tube baby means a baby born when [CBSE AIPMT 2003]
 - (A) The ovum is fertilised externally and thereafter implanted in the uterus
 - (B) It develops from a non-fertilised egg
 - (C) It is developed in a test-tube
 - (D) It is developed through tissue culture method
- 4. Certain characteristic demographic features of developing countries are - [CBSE AIPMT 2004]
 - (A) High fertility, low or rapidly falling mortality rate, rapid population growth and a very young age distribution
 - (B) High fertility, high density, rapidly rising mortality rate and very young age distribution
 - (C) High infant mortality, low fertility, uneven population growth and a very young age distribution
 - (D) High mortality high density, uneven population growth and a very old age distribution
- Given below are four methods (A-D) and their modes 5. of action (i-iv) in achieving contraception. Select their correct matching from the four options that follow: [CBSE AIPMT 2008] **Mode of Action** Method (i) Prevents sperms A. The pill reaching cervix B. Condom (ii) Prevents implanta tion C. Vasectomy (iii) Prevents ovaulation D. Copper-T (iv) Semen contains no sperms

А	В	С	D	
(A)	(iii)	(iv)	(i)	(ii)
(B)	(ii)	(iii)	(i)	(iv)
(C)	(iii)	(i)	(iv)	(ii)
(D)	(iv)	(i)	(ii)	(iii)

PREVIOUS YEAR (NEET/AIPMT)

6.

7.

8.

9.

11.

- Consider the statements given below regarding contraception and answer as directed thereafter:
 - 1. Medical Termination of Pregnancy (MTP) during first trimester is generally safe
 - 2. Generally chances of conception are nil until mother breast-feeds the infant upto two years
 - 3. Intrauterine devices like copper-T are effective contraceptives
 - 4. Contraception pills may be taken upto one week after coitus to prevent conception
 - Which two of the above statement are correct?

	[CBSE AIPMT 2008]
(A) 1, 3	(B) 1, 2
(C) 2, 3	(D) 3, 4

- Cu ions released from copper-releasing Intra Uterine Devices (IUDs)? [CBSE AIPMT 2010, 2000]
- (A) make uterus unsuitable for implantation
- (B) increase phagocytosis of sperms
- (C) suppress sperm motility
- (D) prevent ovulation

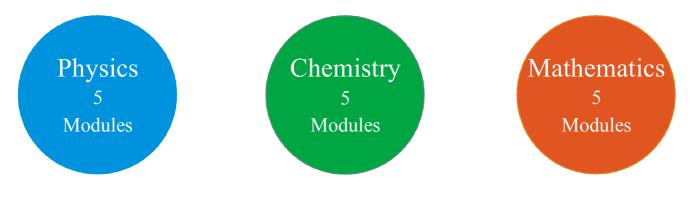
The permissible use of the technique aminocentesis is for ? [CBSE AIPMT 2010]

- (A) Detecting sex of the unborn foetus
- (B) Artificial insemination
- (C) Transfer of embryo into the uterus of a surrogate mother
- (D) Detecting any genetic abnormality
- In vitro fertilisation is a technique that involves transfer of which one of the following into the fallopian [CBSE AIPMT 2010] tube?
 - (A) Embryo only, upto 8 cell stage
 - (B) Either zygote or early embryo upto 8 cell stage
 - (C) Embryo of 32 cell stage
 - (D) Zygote only
- 10. Medical Termination of Pregnancy (MTP) is considered safe up to how many weeks of pregnancy?
 - [CBSE AIPMT 2011]
 - (A) Eight weeks (B) Twelve weeks (C) Eighteen weeks
 - (D) Six weeks
 - Which one of the following is the most widely accepted method of contraception in India, as at present? [CBSE AIPMT 2011]
 - (A) Cervical caps
 - **(B)** Tubectomy
 - (C) Diaphragms
 - (D) IUDs' (Intra uterine devices)

		MOCK	TEST	
1.	Match the following. List I A. Contraceptive pill B. Condom C. Vasectomy D. Copper T (A) A-(iv), B-(i), C-(ii), D-(iii) (C) A-(ii), B-(i), C-(iii), D-(iv) (E) A-(ii), B-(i), C-(iv), D-(iii)		(ii) Inhibits ovulation	iii), D-(iv)
2.	Which of the following is hormone-re (A) LNG-20 (B) Multil	-	(C) Lippes loop	(D) Cu7
3.	Given below are four methods (A-D) a matching from the four options that for Method A. The pill B. Condom C. Vasectomy D. Copper T (A) A-(ii), B-(iii), C-(i), D-(iv) (C) A-(iii), B-(iv), C-(i), D-(ii)		Mode of action (i) Prevents sperms (ii) Prevents implar (iii) Prevents ovula (iv) Semen contain (B) A-(iii), B-(i), C-((D) A-(iv), B-(i), C-(ntation tion is no sperms (iv), D-(ii)
4.	Which of the following is incorrect re (A) No sperm occurs in seminal fluid (C) Vasa deferentia is cut and tied	egarding vasecto	my? (B) No sperm occu (D) Irreversible ster	
5.	 IUDs which are used by females (A) are implanted under the skin and they release progestogen and estrogen (B) act as spermicidal jellies (C) release copper ions in the uterus that increase phagocytosis of sperm (D) block the entry of sperms into vagina 			
6.	The hormone releasing IUD is (A) LNG-20 (B) Lipper (E) Cu7	s loop	(C) Cu T	(D) Multiload 375
7.	Oral contraceptive prevents pregnan (A) Kiulling the ovum (C) Preventing ovulation	cy by	(B) Blocking fertilia(D) Preventing imp	
8.	Read the statements A and B and ider Statement A : Women are at the peak Statement B : Vasectomy is the meth (A) Statement A is wrong, B is right. (C) Both the statements are right.	of conception of	n the 14th day of me	enstrual cycle. eption in females. right, B is wrong.
9.	Which one of the following is not a n (A) Condom (C) Lippes loop	nethod of contra	-	xytocin and vasporessin

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11th Class Modules Chapter Details



PHYSICS

CHEMISTRY

Module-1

- 1. Physical World & Measurements
- 2. Basic Maths & Vector
- 3. Kinematics

Module-2

- 1. Law of Motion & Friction
- 2. Work, Energy & Power

Module-3

- **1.** Motion of system of
- particles & Rigid Body
- 2. Gravitation

Module-4

- 1. Mechanical Properties of Matter
- 2. Thermal Properties of Matter

Module-5

- 1. Oscillations
- 2. Waves

Module-1(PC)

- 1. Some Basic Conceps of Chemistry
- 2. Atomic Structure
- 3. Chemical Equilibrium
- **4.** Ionic Equilibrium

Module-2(PC)

- 1. Thermodynamics & Thermochemistry
- 2. Redox Reaction
- **3.** States Of Matter (Gaseous & Liquid)

Module-3(IC)

- 1. Periodic Table
- 2. Chemical Bonding
- 3. Hydrogen & Its Compounds
- 4. S-Block

Module-4(OC)

- 1. Nomenclature of
- Organic Compounds
- 2. Isomerism
- 3. General Organic Chemistry

Module-5(OC)

- 1. Reaction Mechanism
- 2. Hydrocarbon
- **3.** Aromatic Hydrocarbon
- 4. Environmental Chemistry & Analysis Of Organic Compounds

BIOLOGY

Module-1

- 1. Diversity in the Living World
- 2. Plant Kingdom
- 3. Animal Kingdom

Module-2

- 1. Morphology in Flowering Plants
- **2.** Anatomy of Flowering Plants
- **3.** Structural Organization in Animals

Module-3

- 1. Cell: The Unit of Life
- 2. Biomolecules
- 3. Cell Cycle & Cell Division
- 4. Transport in Plants
- 5. Mineral Nutrition

Module-4

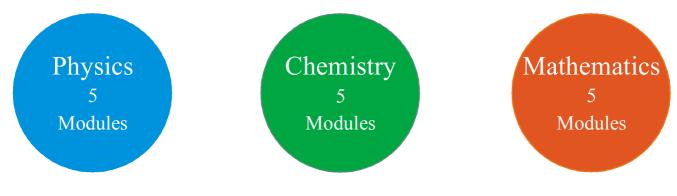
- 1. Photosynthesis in Higher Plants
- 2. Respiration in Plants
- 3. Plant Growth and Development
- 4. Digestion & Absorption
- 5. Breathing & Exchange of Gases

Module-5

- Body Fluids & Its Circulation
 Excretory Products & Their Elimination
- **3.** Locomotion & Its Movement
- 4. Neural Control & Coordination
- **5.** Chemical Coordination and Integration

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12th Class Modules Chapter Details



PHYSICS

Module-1

- 1. Electrostatics
- 2. Capacitance

Module-2

- 1. Current Electricity
- 2. Magnetic Effect of Current and Magnetism

Module-3

- 1. Electromagnetic Induction
- 2. Alternating Current

Module-4

- 1. Geometrical Optics
- 2. Wave Optics

Module-5

- 1. Modern Physics
- 2. Nuclear Physics
- 3. Solids & Semiconductor Devices
- 4. Electromagnetic Waves

CHEMISTRY

Module-1(PC)

- 1. Solid State
- 2. Chemical Kinetics
- **3.** Solutions and Colligative Properties

Module-2(PC)

- 1. Electrochemistry
- 2. Surface Chemistry

Module-3(IC)

- 1. P-Block Elements
- 2. Transition Elements (d & f block)
- 3. Co-ordination Compound
- 4. Metallurgy

Module-4(OC)

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