

# REPRODUCTIVE HEALTH



## BASIC CONCEPTS

### 1. Reasons for high population growth

- (i) Rapid decline in death rate due to control of diseases and better public health care
- (ii) Decline in maternal mortality rate (MMR)
- (iii) Decline in infant mortality rate (IMR)
- (iv) Increase in number of people in reproductive age with advancement in agriculture and better means of transport and technology

### 2. Steps to curb population growth

- (i) Raising marriageable age of girls to 18 years and of boys to 21 years
- (ii) Incentives should be given to couples with small family
- (iii) Motivate couples to use contraceptive methods for small families
- (iv) Advertisements and posters with slogans like “*Hum Do Humare Do*”, ‘*One Child Norm*’ should be displayed to educate people

### 3. Methods of birth control: The contraceptive methods are divided into following categories:

- (i) Natural/traditional methods
- (ii) Barrier methods
- (iii) Intra uterine devices (IUDs)
- (iv) Oral contraceptives
- (v) Injections and implants
- (vi) Surgical methods

### 4. Natural methods of contraception: These are natural methods that work on the principle of avoiding the meeting of ovum and sperm.

- (i) Periodic abstinence is a method in which a couple avoids or abstains from coitus from day 10–17 of the menstrual cycle, when ovulation is expected to occur.
- (ii) Coitus interruptus or withdrawal is a method in which male partner withdraws his penis from the vagina just before ejaculation, so as to avoid insemination.
- (iii) Lactational amenorrhea is based on the principle that during the period of lactation after parturition, ovulation does not occur.

### 5. Barrier methods of contraception: These methods prevent the contact of sperm and ovum with the help of barriers. Such methods are available for both males and females.

- (i) **Condoms** are barriers made of thin rubber/latex sheath used to cover the penis in the male or vagina and cervix in females. It prevents the deposition of ejaculated semen into the vagina of the female.
- (ii) **Diaphragms, cervical caps and vaults** are the barriers made of rubber that are inserted into the female reproductive tract to cover the cervix during coitus. They prevent the entry of sperms through cervix. They are reusable.
- (iii) **Spermicidal creams, jellies and foams** are used along with these barriers to increase their contraceptive efficiency.

### 6. Intra uterine devices (IUDs): These devices are inserted by doctors in the uterus through vagina. There are three types of IUDs available:

- (i) **Non-medicated IUDs:** These increase phagocytosis of sperms within the uterus, *e.g.*, Lippes loop.



- (ii) **Copper releasing IUDs:** Along with phagocytosis of sperms, the copper ions released suppress sperm motility and fertilising capacity of sperms, *e.g.*, CuT, Cu 7, Multiload 375.
- (iii) **Hormone releasing IUDs:** These make the uterus unsuitable for implantation and the cervix hostile to sperms, *e.g.*, Progestasert, LNG-20.

### 7. Oral contraceptive

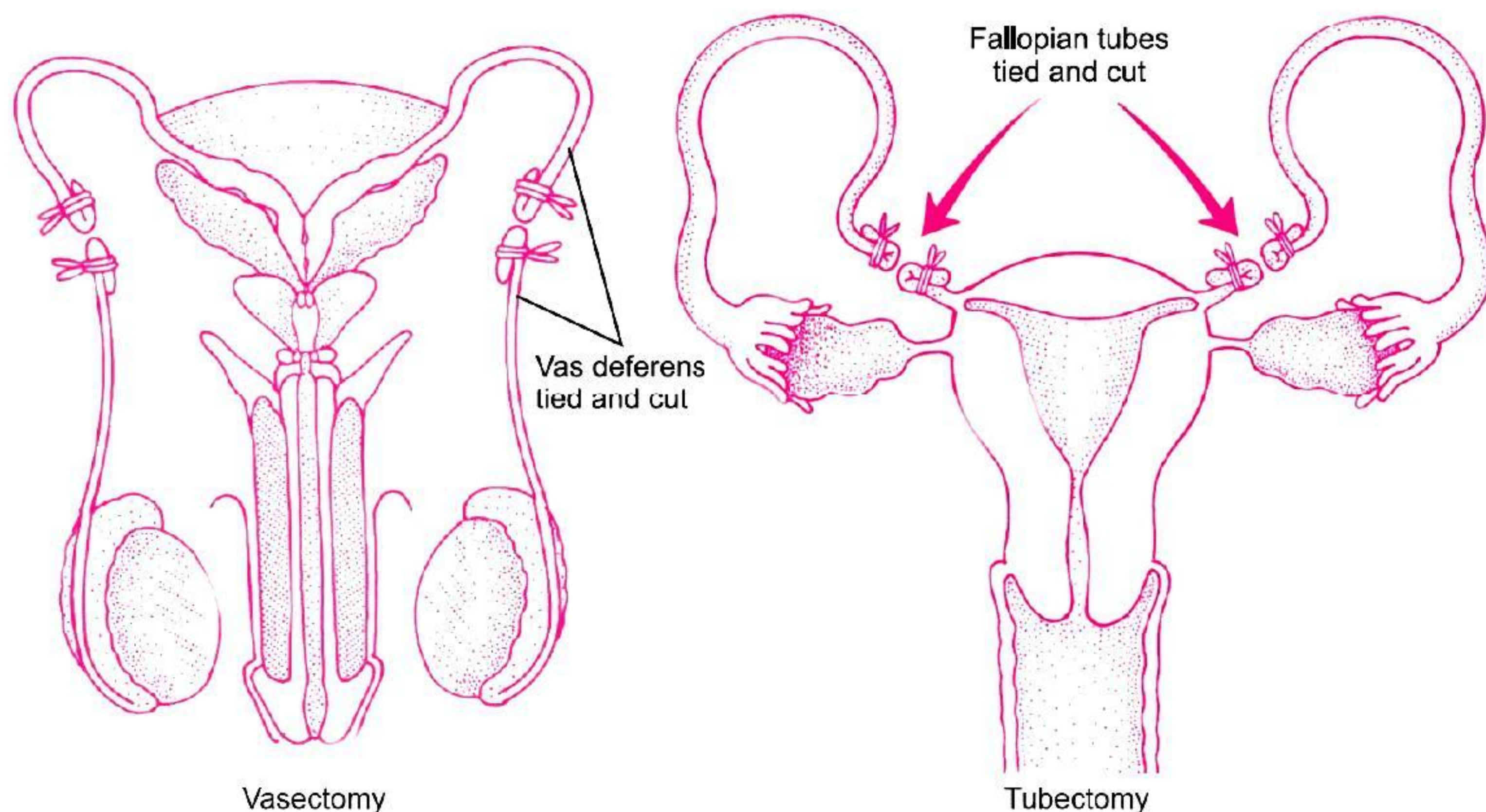
- This involves uptake of hormonal preparations of either progestogens or progestogen–estrogen combinations in the form of **pills** by females.
- They inhibit ovulation and implantation as well as alter the quality of cervical mucus to prevent entry of sperms.
- Pills are to be taken for period of 21 days starting within first five days of menstrual cycle. After gap of 7 days, to be repeated in same pattern.

### 8. Injections and implants

- Progestogens or progestogen–estrogen combination can also be used by females as injections or implants under the skin.
- Their mode of action is similar to that of pills but their effective periods are longer.

### 9. Surgical methods (Sterilisation)

- These are terminal and permanent methods which block the transport of gametes, thereby preventing conception effectively.
- In males, a small part of the vas deferens is removed and tied up through a small incision on the scrotum. This is called **vasectomy**.
- In females, a small part of the fallopian tube is removed and tied up through a small incision in the abdomen or vagina. This is called **tubectomy**.



### 10. Medical Termination of Pregnancy (MTP):

It is defined as intentional or voluntary termination of pregnancy before full term.

MTP is done in the following situations:

- (i) Failure of contraceptive used during coitus
- (ii) When continued pregnancy is harmful or fatal to either mother or foetus or both
- (iii) Rape cases

- 11. Infertility:** It is the inability to produce children in spite of unprotected sexual cohabitation.
- The reasons of infertility could be physical, congenital diseases, drugs, immunological, or even psychological.
  - Specialised health-care units called infertility clinics could help in diagnosis and corrective treatment of some of these disorders.
  - The infertile couples could be assisted to have children through certain special techniques called Assisted Reproductive Technologies (ART), which are given below.
- 12. Test tube baby programmes**
- In this method, ova from the wife/donor (female) and the sperms from the husband/donor (male) are collected and induced to form zygote under simulated conditions in the laboratory. This process is called *in vitro* fertilisation (IVF).
  - The zygote or early embryo with up to 8 blastomeres is transferred into the fallopian tube (process is called **zygote intra fallopian transfer** or **ZIFT**) and if embryo with more than 8 blastomeres is transferred into the uterus (process is called **intra uterine transfer** or **IUT**).
  - In females who cannot conceive, embryos formed by fusion of gametes in another female (called *in vivo* fertilisation) are transferred.
- 13. Gamete Intra Fallopian Transfer (GIFT):** It is the transfer of an ovum collected from a donor into the fallopian tube of another female who cannot produce one, but can provide suitable environment for fertilisation and further development of the embryo.
- 14. Intra Cytoplasmic Sperm Injection (ICSI):** It is a procedure to form an embryo in the laboratory by directly injecting the sperm into an ovum. The embryo is later transferred by ZIFT or IUT.
- 15. Artificial Insemination (AI)**
- In this method, the semen collected either from the husband or a healthy donor is artificially introduced into the vagina or into the uterus (**intra uterine insemination** or **IUI**).
  - This technique is used in cases where the male is unable to inseminate sperms in the female reproductive tract or due to very low sperm counts in the ejaculation.
- 16. Sexually Transmitted Diseases (STDs):** Infections or diseases that are transmitted through sexual intercourse are collectively called **sexually transmitted diseases (STDs) or venereal diseases (VD) or reproductive tract infections (RTI)**.
- STDs are caused by bacteria (syphilis, gonorrhoea), virus (AIDS, hepatitis B, genital herpes, genital warts), protozoans, nematodes, ectoparasites (trichomoniasis, chlamydiasis) and fungi.
  - **Early symptoms:** Itching, fluid discharge, slight pain and swellings in the genital region.
  - **Complications due to chronic STDs:** Pelvic inflammatory diseases (PID), abortions, still births, ectopic pregnancies, infertility, or even cancer of the reproductive tract.
  - **Transmission of hepatitis-B and HIV** also occurs by the following ways:
    - (i) Sharing of injection needles or surgical instruments with infected persons;
    - (ii) transfusion of infected blood;
    - (iii) transfer from infected mother to the foetus through placenta.
  - **STDs can be prevented by implementing following simple principles:**
    - (i) Avoid sex with unknown partners/multiple partners
    - (ii) Always use condoms during coitus
    - (iii) Contact a qualified doctor for any doubt, in early stage of infection



## MULTIPLE CHOICE QUESTIONS

Choose and write the correct option in the following questions.

- In vitro fertilisation involves transfer of \_\_\_\_\_ into the fallopian tube.**
  - embryo up to eight cell stage
  - embryo of thirty two cell stage
  - zygote
  - either zygote or embryo up to eight cell stage
- Tubectomy is a method of sterilisation in which**
  - nucleus is removed
  - ovaries are removed
  - small part of fallopian tube is removed
  - small part of vas deferens is removed
- IUDs release copper ions to**
  - prevent ovulation
  - suppress motility
  - increase phagocytosis of sperm
  - make uterus unsuitable for implantation
- The method of directly injecting a sperm into ovum in Assisted Reproductive Technology is called** [NCERT Exemplar]
  - GIFT
  - ZIFT
  - ICSI
  - ET
- Increased IMR and decreased MMR in a population will** [NCERT Exemplar]
  - cause rapid increase in growth rate
  - result in decline in growth rate
  - not cause significant change in growth rate
  - result in an explosive population
- Intensely lactating mothers do not generally conceive due to the** [NCERT Exemplar]
  - suppression of gonadotropins
  - hypersecretion of gonadotropins
  - suppression of gametic transport
  - suppression of fertilisation
- Sterilisation techniques are generally fool-proof methods of contraception with least side effects. Yet, this is the last option for the couples because**
  - it is almost irreversible
  - of the misconception that it will reduce sexual urge
  - it is a surgical procedure
  - of lack of sufficient facilities in many parts of the country [NCERT Exemplar]

Choose the correct option.

- (i) and (iii)
  - (ii) and (iii)
  - (ii) and (iv)
  - (i), (ii), (iii) and (iv)
- Which of the following STDs are caused by bacteria?**
    - AIDS and genital herpes
    - Syphilis and gonorrhoea
    - Trichomoniasis and scabies
    - All of these
  - Which of the following is example of hormone-releasing IUDs ?**
    - CuT and Multiload 375
    - LNG-20 and Progestasert
    - Lippes loop
    - Both (b) and (c)

10. **A national level approach to build up a reproductively healthy society was taken up in our country in** [NCERT Exemplar]  
 (a) 1950s (b) 1960s  
 (c) 1980s (d) 1990s
11. **Emergency contraceptives are effective if used within** [NCERT Exemplar]  
 (a) 72 hrs of coitus (b) 72 hrs of ovulation  
 (c) 72 hrs of menstruation (d) 72 hrs of implantation
12. **Choose the right one among the statements given below.** [NCERT Exemplar]  
 (a) IUDs are generally inserted by the user herself.  
 (b) IUDs increase phagocytosis reaction in the uterus.  
 (c) IUDs suppress gametogenesis.  
 (d) IUDs once inserted need not be replaced.
13. **Following statements are given regarding MTP.** [NCERT Exemplar]  
 (i) MTPs are generally advised during first trimester.  
 (ii) MTPs are used as a contraceptive method.  
 (iii) MTPs are always surgical.  
 (iv) MTPs require the assistance of qualified medical personnel.  
**Choose the correct option.**  
 (a) (ii) and (iii) (b) (i) and (iii)  
 (c) (i) and (iv) (d) (i) and (ii)
14. **From the sexually transmitted diseases mentioned below, identify the one which does not specifically affect the sex organs.** [NCERT Exemplar]  
 (a) Syphilis (b) AIDS  
 (c) Gonorrhoea (d) Genital warts
15. **Condoms are one of the most popular contraceptives because of the following reasons.** [NCERT Exemplar]  
 (a) These are effective barriers for insemination.  
 (b) They do not interfere with coital act.  
 (c) These help in reducing the risk of STDs.  
 (d) All of the above
16. **Which of the followings is/are barrier method(s) of contraception?**  
 (a) Rhythm method/Periodic abstinence (b) Lactational amenorrhoea  
 (c) Withdrawal method (d) None of these
17. **Which of the following is not a cause of population explosion in India?**  
 (a) Better healthcare (b) Increased IMR  
 (c) Declining MMR (d) Increased population of reproductive age
18. **Choose the correct statement regarding the ZIFT procedure.** [NCERT Exemplar]  
 (a) Ova collected from a female donor are transferred to the fallopian tube to facilitate zygote formation.  
 (b) Zygote is collected from a female donor and transferred to the fallopian tube.  
 (c) Zygote is collected from a female donor and transferred to the uterus.  
 (d) Ova collected from a female donor and transferred to the uterus.
19. **The correct surgical procedure as a contraceptive method is** [NCERT Exemplar]  
 (a) ovariectomy (b) hysterectomy  
 (c) vasectomy (d) castration



20. Diaphragms are contraceptive devices used by the females. Choose the correct option from the statements given below: [NCERT Exemplar]

- (i) They are introduced into the uterus.
  - (ii) They are placed to cover the cervical region.
  - (iii) They act as physical barriers for sperm entry
  - (iv) They act as spermicidal agents.
- (a) (i) and (ii) (b) (i) and (iii)  
(c) (ii) and (iii) (d) (iii) and (iv)

21. Lactational amenorrhoea means

- (a) absence of menstruation during pregnancy
- (b) absence of menstruation during lactation
- (c) excessive bleeding during menstruation
- (d) no production and secretion of milk

22. Match the items of column I with suitable items of column II.

Column I	Column II
A. Barrier method	(i) Condoms
B. IUD	(ii) Multiload 375
C. Surgical technique	(iii) Tubectomy
D. Hormone administration	(iv) Implants
(a) A—(i), B—(ii), C—(iv), D—(iii)	(b) A—(i), B—(ii), C—(iii), D—(iv)
(c) A—(i), B—(iv), C—(ii), D—(iii)	(d) None of these

23. Amniocentesis is a process to

- (a) grow cells on the culture medium
- (b) determine any hereditary disease of the embryo
- (c) know about the diseases of the brain
- (d) determine any disease of heart

24. Which of the following methods of contraception is most widely used?

- (a) IUDs (b) Tubectomy
- (c) Cervical caps (d) Diaphragms

25. Medical Termination of Pregnancy is safe up to

- (a) 8 weeks of pregnancy (b) 12 weeks of pregnancy
- (c) 18 weeks of pregnancy (d) 24 weeks of pregnancy

26. Assisted Reproductive Technology involves transfer of

- (a) ovum into the fallopian tube (b) zygote into the fallopian tube
- (c) embryo into the fallopian tube (d) zygote into the uterus

27. Choose the odd one out.

- (a) Multiload 375 (b) CuT
- (c) Progestasert (d) Cu7

28. Which of the following contraceptive method is also known as withdrawal method?

- (a) Coitus interruptus (b) IUDs
- (c) Periodic abstinence (d) Lactational amenorrhea

29. Which of the following is a contraceptive method in which the couples avoid coitus on 10 to 17 day of menstrual cycle?

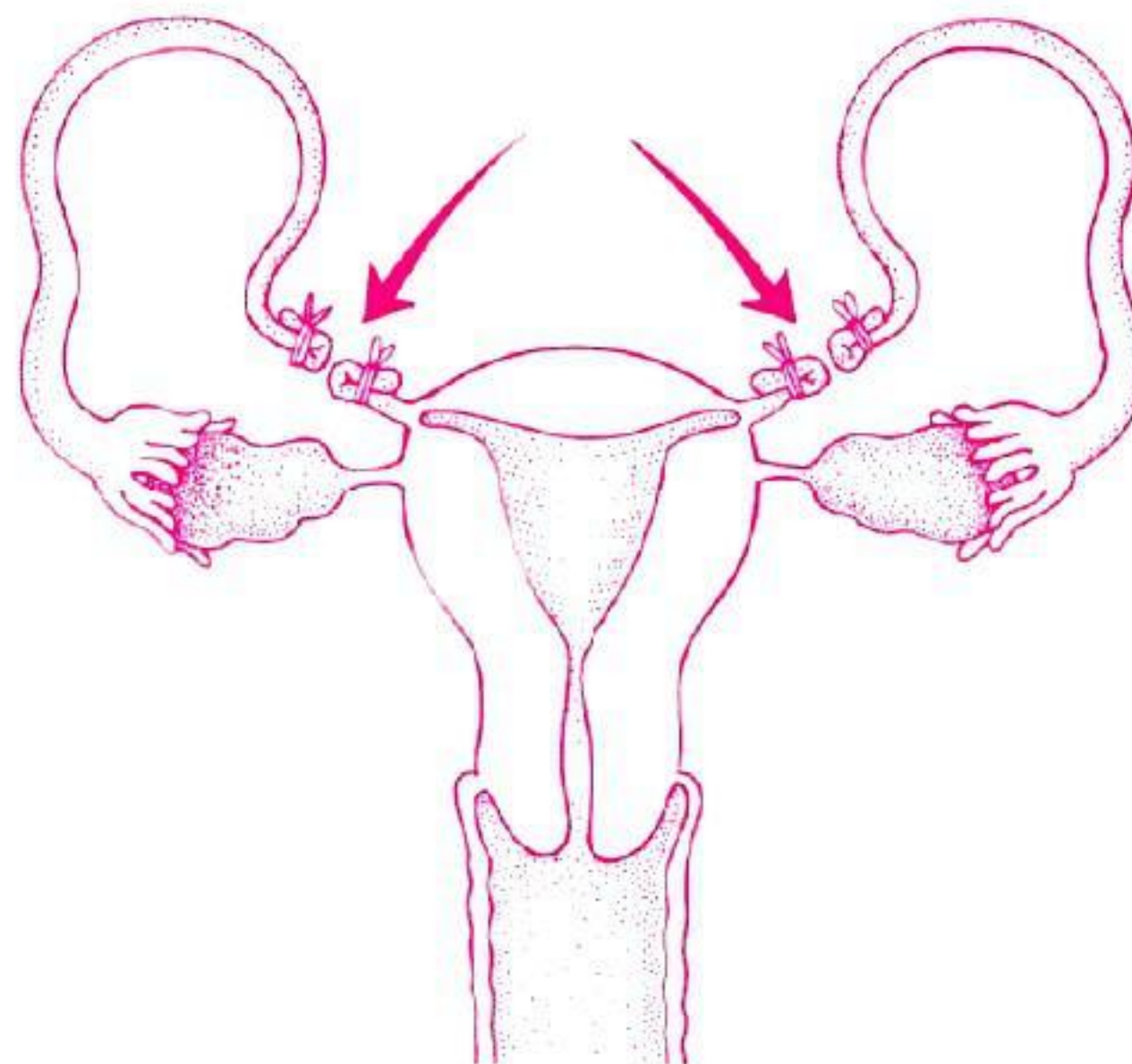
- (a) Lactational amenorrhea (b) Periodic abstinence
- (c) Coitus interruptus (d) Withdrawal method

- 30. Sterilisation procedure in female is called**
- (a) vasectomy (b) tubectomy  
(c) hysterectomy (d) none of these
- 31. *In vitro* fertilisation occurs in which of the following ARTs?**
- (a) ZIFT (b) GIFT  
(c) ICSI (d) IVF
- 32. The hormones which are mainly present in the oral contraceptive pills are**
- (a) progesterone and follicle stimulating hormone  
(b) follicle stimulating hormone  
(c) progesterone and estrogen  
(d) progesterone and luteinising hormone
- 33. In vasectomy, which part is tied up?**
- (a) Vasa deferentia (b) Vasa efferentia  
(c) Epididymis (d) Ejaculatory duct
- 34. Identify the correct statement/s about IUDs.**
1. Copper ions suppress sperm motility and fertilising capacity of sperms.
  2. IUDs increase phagocytosis of sperm.
  3. Hormone-releasing IUDs make the uterus unsuitable for implantation.
  4. LNG-20 is a hormone-releasing IUD.
- (a) 1 and 2 (b) 2 and 3  
(c) 1, 2 and 3 (d) All are correct
- 35. MTP is**
- (a) Maternally Transmitted Pathogen (b) Mechanical Transfer of Pollen  
(c) Medical Termination of Pregnancy (d) Medical Termination of Parturition
- 36. According to WHO, reproductive health means well-being in the \_\_\_\_\_ aspects.**
- (a) physical and emotional (b) behavioural  
(c) social (d) all of these
- 37. What is 'Saheli'?**
- (a) It is an oral contraceptive pill for females.  
(b) It is a diaphragm for females.  
(c) It is a surgical method of contraception for females.  
(d) It is an oral contraceptive pill for males.
- 38. Which of the following statements are true about diaphragms?**
- (1) They block the entry of sperms.
  - (2) They are re-usable.
  - (3) They are placed to cover the cervix.
  - (4) They are contraceptive devices used by males.
- (a) 1 and 2 (b) 2 and 3  
(c) 1 and 3 (d) 1, 2 and 3
- 39. In tubectomy, which part is removed?**
- (a) Fallopian tube (b) Fimbriae  
(c) Vas deferens (d) Ovary

- 40. Sperm directly injected into the ovum is**
- (a) IUI (b) ICSI  
(c) IVF (d) GIFT
- 41. Termination is considered to be safe if done within**
- (a) second trimester of pregnancy (b) twelve weeks of pregnancy  
(c) five months of pregnancy (d) 21 weeks of pregnancy
- 42. Which of the following statements is (are) true about surgical method?**
- (1) It is highly effective.  
(2) The reversibility is very poor.  
(3) It blocks gamete transport thereby preventing conception.  
(4) Sterilisation procedure in males is called tubectomy and in females it is called vasectomy.
- (a) 1 and 2 (b) 1, 2 and 3  
(c) All of these (d) Only 2
- 43. In which of the following age groups, the incidences of STDs are reported to be very high?**
- (a) 10 – 15 years (b) 24 – 30 years  
(c) 15 - 24 years (d) 28 – 32 years
- 44. Choose the incorrect statement.**
- (a) The statutory ban on amniocentesis is to legally check the female foeticide.  
(b) Embryo with more than 32 blastomers is transferred into the uterus.  
(c) 10<sup>th</sup> – 17<sup>th</sup> day of the menstrual cycle are called the infertile period.  
(d) Contraceptive pills prevent ovulation and implantation.
- 45. CuT prevents**
- (a) ovulation (b) embryogenesis  
(c) maturation of ovum (d) fertilisation
- 46. Contractive pills**
- (a) inhibit ovulation (b) alter the quality of cervical mucus  
(c) both (a) and (b) (d) engulf the sperm
- 47. A couple went to a doctor for the regular checkup of the developing foetus. The doctor ran some tests and found that the developing foetus had chromosomal abnormalities and suggested the couple to undergo abortion, the technique used by doctor to check the abnormalities is**
- (a) vasectomy (b) ICSI  
(c) amniocentesis (d) ZIFT
- 48. A male is infertile which is due to very low sperm count production. What technique would you suggest for correcting his infertility?**
- (a) Artificial insemination (b) GIFT  
(c) ZIFT (d) IVF
- 49. Which IUD would you suggest to promote cervix hostility to sperms?**
- (a) LNG – 20 (b) CuT  
(c) Cu7 (d) Multiload 375
- 50. Which of the following ARTs would you suggest to form an embryo in laboratory conditions without a donor for a couple in which the male partner can inseminate normally but mobility of sperms is very low?**
- (a) IUD (b) ICSI  
(c) GIFT (d) None of these



- 51. Introduction of sex education in schools is important to**
- (a) prevent myths and misconceptions about sex-related aspect
  - (b) be friendly regardless of sex
  - (c) prevent child marriage
  - (d) both (b) and (c)
- 52. Coitus interruptus is a contraceptive method in which**
- (a) ovulation does not occur in females so chances of conception are almost nil
  - (b) male partner withdraws his penis from vagina just before ejaculation to avoid insemination
  - (c) couples abstain from coitus from day 10 to 17 of menstruation when ovulation occurs
  - (d) none of these
- 53. Lactational amenorrhea has been reported to be effective only upto a maximum period of \_\_\_\_\_ following parturition.**
- (a) 2 years
  - (b) 1 month
  - (c) 6 months
  - (d) 5 years
- 54. Which of the following statements is incorrect about natural method of contraception?**
- (a) No devices are used in these methods.
  - (b) Chances of failure of this method are low.
  - (c) There are no side effects.
  - (d) All of these
- 55. Condoms are used to cover \_\_\_\_\_ in female.**
- (a) glans penis
  - (b) labia majora
  - (c) cervix
  - (d) fallopian tube
- 56. Which of the following statements is true about condoms?**
- (a) They do not give privacy to the user.
  - (b) They protect the user from contracting STD.
  - (c) They are not disposable.
  - (d) They are terminal methods to prevent any known pregnancies.
- 57. Cu ions released from Multiload 375**
- (a) suppress sperm motility
  - (b) suppress fertility capacity of sperms
  - (c) both (a) and (b)
  - (d) makes the cervix hostile to sperms
- 58. Which method of contraception is depicted in the figure given below?**



- (a) Vasectomy
- (b) Tubectomy
- (c) ICSI
- (d) IUD

59. **Vaults are one of the barrier methods that**
- prevent conception by blocking the entry of sperm through cervix
  - release Cu ions
  - are not reversible
  - release progesterones
60. **What is extracted from the developing foetus to test the presence of genetic disorders?**
- Yolk sac
  - Endometrium
  - Amniotic fluid
  - Placenta
61. **Hormone containing structures which are placed under the skin are called**
- vaults
  - implants
  - cervical cap
  - pill
62. **Birth control pills are taken for a period of \_\_\_\_\_ days daily.**
- 7
  - 31
  - 21
  - 10
63. **Which of the following statements is true about pills?**
- They are very effective.
  - They have less side effects.
  - They are widely accepted by females.
  - All of these
64. **Choose the odd one out.**
- CuT
  - Diaphragms
  - Pills having vasopressin
  - Vasectomy
65. **Induced abortion is also known as**
- MTP
  - STI
  - RTI
  - VD
66. **The technique in which semen from husband is artificially introduced into the vagina is called**
- Assisted Reproductive Technology
  - Intra-Vaginal Insemination
  - Intra Cytoplasmic Sperm Injection
  - Intra-Uterine Insemination
67. **Every sixth person in the world is an Indian. Which of the following is reason for this?**
- A rapid decline in death rate
  - Decrease in maternal mortality rate and infant mortality rate
  - An increase in number of people in reproductive age
  - All of these
68. **Which of the following test is misused for sex determination of unborn baby ?**
- Erythroblastosis
  - Australia antigen test
  - VDRL test
  - Amniocentesis
69. **What is GIFT ?**
- Transfer of sperms and egg into fallopian tube
  - Transfer of zygote into fallopian tube
  - Transfer of embryo into uterus
  - Transfer of semen into vagina
70. **Which of the following STDs are caused by bacteria ?**
- AIDS and genital herpes
  - Syphilis and gonorrhoea
  - Trichomoniasis and scabies
  - All of these
71. **Which of the following is example of hormone-releasing IUDs ?**
- CuT and Multiload 375
  - LNG-20 and Progestasert
  - Lippes loop
  - Both (b) and (c)

- 72. Which of the following is/are natural method of contraception ?**  
 (a) Condom (b) Cervical cap and vaginal vault cap  
 (c) Diaphragm (d) None of these
- 73. Which of the following is/are barrier method of contraception ?**  
 (a) Rhythm method/periodic abstinence (b) Lactational amenorrhea  
 (c) Withdrawal method (d) None of these
- 74. Study of human population is called**  
 (a) demography (b) biography  
 (c) nanography (d) geneology
- 75. 'Family planning' programme was initiated in**  
 (a) 1971 (b) 1951  
 (c) 1970 (d) 1953
- 76. Which of the following non-steroid contraceptive pill was developed by CDRI, Lucknow, India?**  
 (a) *Chameli* (b) *Saheli*  
 (c) *Jhilimili* (d) *Champakali*
- 77. Which of the following is not a cause of population explosion in India?**  
 (a) Better health care (b) Increased IMR  
 (c) Decreased MMR (d) Increased population of reproductive age
- 78. Contraceptive pill 'Saheli' developed by CDRI, Lucknow, is made up of**  
 (a) progesterone (b) estrogen  
 (c) both (a) and (b) (d) none of these
- 79. Lippes loop is the example of**  
 (a) female condom (b) non-medicated IUD  
 (c) hormone releasing IUD (d) barrier method of contraception
- 80. Morning after pills or *i*-pills are taken**  
 (a) daily for 21 days and repeated after a gap of 7 days  
 (b) daily for all the days  
 (c) once in a week  
 (d) within 72 hours of unprotected sex
- 81. Condoms are**  
 (a) used by males and females as barrier method of contraception  
 (b) used by males and females as natural method of contraception  
 (c) used by males only as barrier method of contraception  
 (d) used by males and females as hormonal method of contraception
- 82. Which of the following is the most effective method of contraception?**  
 (a) IUD (b) Use of condom  
 (c) Tubectomy (d) Lactational amenorrhea
- 83. What is true about world's first non-steroid contraceptive pill 'Saheli'?**  
 (a) Developed by CDRI, Lucknow  
 (b) 'Once-a-week' pill  
 (c) High contraceptive value with very few side effects  
 (d) All of these

84. Genital herpes is caused by a

- (a) bacteria (b) virus  
(c) protozoa (d) fungi

85. Which of the following is not included in Assisted Reproductive Technology ?

- (a) IVF (b) GIFT  
(c) *i*-pill (d) ICSI

86. Test tube baby implies which of the following techniques?

- (a) IVF (b) GIFT  
(c) ZIFT (d) ICSI

87. Match the IUD of column I with suitable example in column II.

Column I	Column II
A. Non-medicated	1. Lippes loop
B. Copper releasing	2. Multiload-375
C. Hormone releasing	3. LNG-20

- (a) A—3, B—2, C—1 (b) A—1, B—2, C—3  
(c) A—1, B—3, C—2 (d) A—2, B—1, C—3

88. Match the items of column I with suitable items of column II.

Column I	Column II
A. Barrier method	1. Condoms
B. IUD	2. Multiload-375
C. Surgical technique	3. Tubectomy
D. Hormone administration	4. Implants

- (a) A—1, B—2, C—4, D—3 (b) A—1, B—2, C—3, D—4  
(c) A—1, B—4, C—2, D—3 (d) None of these

89. Candidiasis is caused by

- (a) bacteria (b) virus  
(c) protozoa (d) fungi

90. Match the following methods with their correct modes of action in achieving contraception.

Column I	Column II
A. Contraceptive pills	1. Prevent physical meeting of gametes
B. Condom	2. Semen will be without sperms
C. Vasectomy	3. Prevent implantation
D. Copper-T	4. Prevents ovulation

- (a) A—3, B—1, C—2, D—4 (b) A—2, B—3, C—1, D—4  
(c) A—3, B—1, C—4, D—2 (d) A—4, B—1, C—2, D—3

91. Implants (contraceptive devices) are used by the female under the

- (a) skin of the inner arm below elbow (b) skin of vagina  
(c) skin of the arm upper (d) skin of uterus

92. Chlamydiasis is a STD caused by

- (a) bacteria (b) virus  
(c) protozoa (d) helminths

- 93. Artificial insemination means**
- introduction of sperms of healthy donor directly into the ovary
  - transfer of sperms of husband to a test tube containing ova
  - artificial introduction of sperms of a healthy donor into the vagina
  - transfer of sperms of a healthy donor to a test tube containing ova
- 94. Test-tube baby means**
- Fertilisation of an ovum externally and thereafter implanted in the uterus.
  - Development of a baby from a non-fertilised egg.
  - Development of baby through tissue culture method.
  - Development of baby in a test tube.
- 95. Which one of the following is not a method of contraception ?**
- Condoms
  - Pills of a combination of oxytocin and prolactin
  - Tubectomy
  - Lippes loop
- 96. Lippes loop is**
- surgical contraceptive method
  - traditional contraceptive method
  - contraceptive method for males
  - non-medicated IUD
- 97. Which of the following statement is true regarding amniocentesis ?**
- It is a technique to correct the genetic features of the foetus.
  - It is a technique to reverse the sex of foetus.
  - It is a technique to detect chromosomal abnormalities in a child.
  - It is a technique to estimate the essential amino acids in the body.
- 98. ZIFT is one of the technique of ART in which transfer of \_\_\_\_\_ occurs.**
- zygote into fallopian tube
  - embryo into the uterus
  - a mixture of sperms and ova into the uterus
  - sperms from a healthy male donor
- 99. Which of the following is a birth control method?**
- GIFT
  - ZIFT
  - ICSI
  - IUDs
- 100. Which of the following methods work on the principle of avoiding the chances of meeting of ovum and sperm?**
- Natural methods
  - Barrier methods
  - Surgical methods
  - None of these
- 101. An ideal contraceptive should be**
- user friendly and easily available
  - effective and reversible
  - having no or least side-effects
  - all of these
- 102. Government of India has raised the marriageable age of females to \_\_\_\_\_ years and of males to \_\_\_\_\_ years respectively.**
- 18, 18
  - 21, 21
  - 18, 21
  - 21, 18



103. In India, the population reached close to 1 billion by 2000. The possible reasons for this is
- decrease in rate of maternal mortality rate and infant mortality
  - increase in rate of maternal mortality rate and infant mortality rate
  - increase in maternal mortality rate and decrease in infant mortality rate
  - decrease in maternal mortality rate and increase in infant mortality rate
104. If proper treatment is not done. The STDs can cause
- pelvic inflammatory disease
  - still births
  - ectopic pregnancies
  - all of these

## Answers

- |         |         |         |          |          |          |          |          |
|---------|---------|---------|----------|----------|----------|----------|----------|
| 1. (d)  | 2. (d)  | 3. (b)  | 4. (c)   | 5. (c)   | 6. (a)   | 7. (d)   | 8. (b)   |
| 9. (b)  | 10. (a) | 11. (a) | 12. (b)  | 13. (c)  | 14. (b)  | 15. (d)  | 16. (d)  |
| 17. (d) | 18. (b) | 19. (c) | 20. (c)  | 21. (b)  | 22. (b)  | 23. (b)  | 24. (d)  |
| 25. (c) | 26. (c) | 27. (c) | 28. (a)  | 29. (b)  | 30. (b)  | 31. (b)  | 32. (c)  |
| 33. (a) | 34. (d) | 35. (c) | 36. (d)  | 37. (a)  | 38. (d)  | 39. (a)  | 40. (b)  |
| 41. (b) | 42. (b) | 43. (c) | 44. (c)  | 45. (d)  | 46. (c)  | 47. (c)  | 48. (a)  |
| 49. (a) | 50. (b) | 51. (a) | 52. (b)  | 53. (c)  | 54. (b)  | 55. (c)  | 56. (b)  |
| 57. (c) | 58. (b) | 59. (a) | 60. (c)  | 61. (b)  | 62. (c)  | 63. (d)  | 64. (c)  |
| 65. (a) | 66. (d) | 67. (d) | 68. (d)  | 69. (a)  | 70. (b)  | 71. (b)  | 72. (b)  |
| 73. (d) | 74. (a) | 75. (b) | 76. (b)  | 77. (b)  | 78. (d)  | 79. (b)  | 80. (d)  |
| 81. (a) | 82. (c) | 83. (d) | 84. (b)  | 85. (c)  | 86. (a)  | 87. (b)  | 88. (b)  |
| 89. (d) | 90. (d) | 91. (c) | 92. (a)  | 93. (c)  | 94. (a)  | 95. (b)  | 96. (b)  |
| 97. (c) | 98. (a) | 99. (d) | 100. (b) | 101. (d) | 102. (c) | 103. (a) | 104. (d) |

## CASE-BASED QUESTIONS

Attempt any 4 sub-parts from each question. Each question carries 1 mark.

1. Read the following and answer the questions given below:

### IN-VITRO FERTILISATION (IVF)

Fertilisation outside the body within culture medium is *in-vitro* fertilisation. It is one of the various special techniques termed as Assisted Reproductive Technologies (ART) used to assist childless couples with certain problems in conception. IVF is a complex series of procedures which helps with fertility or prevent genetic problems and assist with conception of a child. It is commonly termed as test-tube baby programme, during this activity ova from wife or donor female and sperms from the husband or donor male are collected and are induced to form zygote under simulated conditions in laboratory. The zygote or early embryos (with upto 8 blastomeres) could then be transferred into the fallopian tube (ZIFT) and embryos with more than 8 blastomeres are transferred into the uterus (IUT) to complete its further development. Embryos formed by *in-vitro* fertilisation (fusion of gametes within female reproductive tract) also could be used for such transfer to assist those females who cannot conceive.

- (i) ZIFT- refers to transfer of embryos into fallopian tube

- at 2 celled stage
- at 4 celled stage
- at 8 celled stage
- upto 8 celled stage

**(ii) IUT refers to transfer of**

- (a) 8 celled embryos into fallopian tub
- (b) embryo with more than 8 balstomeres in uterus
- (c) zygote into uterus
- (d) embryo upto 8 celled stage into uterus

**(iii) IVF refers to**

- (a) transfer of zygote into uterus
- (b) fusion of sperm and ovum within uterus
- (c) fusion of sperm and ovum outside the body
- (d) fusion of embryo with uterine wall

**(iv) Which of the following does not include ART?**

- (a) Fusion of sperm and ovum outside the body
- (b) Fusion of sperm and ovum within a test tube
- (c) Transfer of zygote within uterus
- (d) Fusion of sperm and ovum within fallopian tube

**(v) The method of directly injecting a sperm into ovum in Assisted Reproductive Technology is called**

- (a) GIFT
- (b) ZIFT
- (c) ICSI
- (d) ET

## **Answers**

1. (i) (d) Upto 8 celled stage  
(ii) (b) Transfer of embryo with more than 8 blastomers in uterus  
(iii) (c) Fusion of sperm and ovum outside the body  
(iv) (d) Fusion of sperm and ovum within fallopian tube  
(v) (c) ICSI

**2. Read the following and answer the questions given below:**

### **AMNIOCENTESIS**

Amniocentesis is a technique for detection of foetal abnormalities such as Down's syndrome, cystic fibrosis. It is performed between 16 and 20 weeks of the pregnancy. It is based on the chromosomal pattern in the cells present in amniotic fluid surrounding the developing embryo. The amniotic fluid contains cells from foetal tissues. The amniotic fluid is sampled from amniotic sac surrounding the foetus. The foetal cells and foetal DNA is examined to identify some abnormalities in the number of chromosomes and to detect certain genetic abnormalities. It can also be used to determine sex of the infant. These prenatal examinations can prove helpful to expectant guardians as they allow for evaluating the foetal health status and feasibility of treatment. However now a days it has been responsible for female foeticide. The normal female foetus is aborted in want of a male child who is preferred over the female in most of the ignorant families.

**(i) Amniocentesis can be used for**

- (a) determination of chromosomal abnormalities
- (b) detection of genetic disorders
- (c) detection of sex of infant
- (d) all of these

- (ii) **Amniocentesis has been banned as it has promoted**  
 (a) foeticide (b) homicide  
 (c) female foeticide (d) male foeticide
- (iii) **The technique of amniocentesis was developed mainly for**  
 (a) detection of chromosomal abnormalities  
 (b) detection of foetal sex  
 (c) detection of metabolic disorders  
 (d) all of these
- (iv) **Which of the following option(s) is correct regarding amniotic fluid?**  
 (a) It is a fluid enclosed within amniotic sac.  
 (b) It is a fluid surrounding foetus.  
 (c) It is a fluid containing cells from foetal tissue.  
 (d) All of these
- (v) **Assertion : Amniocentesis is prenatal diagnostic technique.**  
**Reason : It is done to detect chromosomal disorders and genetic disorder in foetus.**  
 (a) Both assertion and reason are true, and the reason is correct explanation of assertion.  
 (b) Both assertion and reason are true, but the reason is not the correct explanation of assertion.  
 (c) Assertion is true but reason is false.  
 (d) Both assertion and reason are false.

## Answers

2. (i) (d) All of these  
 (ii) (c) Female foeticide  
 (iii) (a) Detection of chromosomal abnormalities  
 (iv) (d) All of these  
 (v) (a) Both assertion and reason are true, and the reason is correct explanation of assertion.

## ASSERTION-REASON QUESTIONS

*In the following questions a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.*

- (a) *Assertion and reason both are correct statements and reason is correct explanation for assertion.*  
 (b) *Assertion and reason both are correct statements but reason is not correct explanation for assertion.*  
 (c) *Assertion is correct statement but reason is wrong statement.*  
 (d) *Assertion is wrong statement but reason is correct statement.*

- Assertion** : IUT is the transfer of embryo with more than 8 blastomeres into the uterus.  
**Reason** : IUT is a very popular method of forming embryos *in vitro*.
- Assertion** : In IVF fertilisation is done inside the body of the woman.  
**Reason** : Zygote up to 8 blastomeres can be transferred into the fallopian tube.
- Assertion** : *Saheli* is an oral contraceptive pill for females containing non-steroidal preparation.  
**Reason** : It is 'once in a day' pill with very few effects.
- Assertion** : Diaphragms and cervical caps are barriers made of rubber.  
**Reason** : They block the entry of sperms through the cervix.



5. **Assertion** : In barrier methods of contraception, ovum and sperms are prevented from physical meeting.  
**Reason** : Barrier methods are used during coitus to prevent entry of sperms into the female reproductive tract.
6. **Assertion** : In tubectomy, a small part of the fallopian tubes is cut and tied up.  
**Reason** : In vasectomy, a small part of the vas deferens is cut and tied up.
7. **Assertion** : Syphilis, gonorrhoea and AIDS are some common STDs.  
**Reason** : STDs are transmitted through sexual intercourse.
8. **Assertion** : ICSI is an assisted reproductive technique.  
**Reason** : In ICSI sperm is directly injected into the ovum to form an embryo *in vitro*.
9. **Assertion** : Oral contraceptive pills are effective method of contraception with few side effects.  
**Reason** : Oral pills like *Saheli* inhibit ovulation and implantation.
10. **Assertion** : Lactational amenorrhoea is a natural method of contraception.  
**Reason** : Ovulation does not take place during the period of intense lactation following child birth.

### Answers

1. (c)      2. (d)      3. (c)      4. (b)      5. (a)      6. (b)      7. (b)      8. (a)  
 9. (b)      10. (a)

### HINTS/EXPLANATIONS OF SELECTED MCQs

27. (c) Progesterone-releasing IUD while others are copper-releasing IUDs.
28. (a) The withdrawal method of contraception (coitus interruptus) is the practice of withdrawing the penis from the vagina and away from a woman's external genitals before ejaculation to prevent pregnancy.
29. (b) Periodic abstinence is defined as the natural contraception method where couples avoid pregnancy by not doing sexual intercourse during the period of ovulation *i.e.*, from day 10th to 17th of menstrual cycle.
30. (b) Tubectomy, also known as tubal sterilization, is a permanent method of contraception in women. It is a surgical process that blocks the fallopian tubes, thereby preventing the egg released by the ovary from reaching the uterus.
31. (b) Gamete intrafallopian transfer (GIFT) is an *in vivo* technique. The eggs are collected from the ovaries. The gametes (both eggs and sperm) are then injected into the fallopian tubes using a surgical procedure called as laparoscopy.
32. (c) Oral contraceptives (birth-control pills) are used to prevent pregnancy. Estrogen and progesterone are two female sex hormones. Combinations of estrogen and progesterone work by preventing ovulation (the release of eggs from the ovaries). They also change the lining of the uterus (womb) to prevent pregnancy from developing and change the mucus at the cervix (opening of the uterus) to prevent sperm (male reproductive cells) from entering.
38. (d) Using a diaphragm is a form of birth control. It prevents pregnancy by creating a barrier between a woman's uterus and a man's sperm. A diaphragm is a reusable dome-shaped cup. It fits over the opening of the cervix.
40. (b) Intracytoplasmic sperm injection (ICSI) is a technique used during *in vitro* fertilisation (IVF) where a single sperm is injected directly into the egg for the purpose of fertilisation.

43. (c) Incidences and prevalence estimates suggest that young people aged 15–24 years acquire half of all new STDs and that one in four sexually active adolescent females has an STD, such as chlamydia or human papillomavirus (HPV).
45. (d) The copper IUD's primary mechanism of action is to prevent fertilisation. Copper acts as a spermicide within the uterus. The presence of copper increases the levels of copper ions, prostaglandins, and white blood cells within the uterine and tubal fluids.
46. (c) Oral contraceptives (birth-control pills) are used to prevent pregnancy. Estrogen and progesterone are two female sex hormones. Combinations of estrogen and progesterone work by preventing ovulation (the release of eggs from the ovaries). They also change the lining of the uterus (womb) to prevent pregnancy from developing and change the mucus at the cervix (opening of the uterus) to prevent sperm (male reproductive cells) from entering.
47. (c) Amniocentesis is a medical procedure used primarily in prenatal diagnosis of chromosomal abnormalities and foetal infections as well as for sex determination. In this procedure, a small amount of amniotic fluid, which contains foetal tissues, is sampled from the amniotic sac surrounding a developing foetus.
48. (a) Artificial insemination is the deliberate introduction of sperm into a female's cervix or uterine cavity for the purpose of achieving pregnancy through *in vivo* fertilisation by means other than sexual intercourse.
49. (a) The hormone-releasing IUD is LNG-20, and it makes the uterus unfavourable for implantation and cervix hostile to the sperms.
50. (b) ICSI (Intracytoplasmic sperm injection) is most commonly used to overcome male infertility problems, although it may also be used where eggs cannot easily be penetrated by sperm and occasionally in addition to sperm donation.
53. (c) The use of lactational amenorrhea is highly limited, as it is effective only in the first six months postpartum, for women that are not having menstrual periods and breastfeeding exclusively.
57. (c) Cu7, CuT and Multiload 375 are copper releasing IUDs. Cu ions released by IUDs suppress sperm motility and the fertilising capacity of the sperms.
59. (a) Diaphragms, cervical caps and vaults are made of rubber and are inserted into the female reproductive tract to cover the cervix before coitus.
60. (c) The amniotic fluid test (amniocentesis) is intended to diagnose foetal defects and/or genetic diseases.
61. (b) The implant is a plastic rod about the size of a matchstick. It contains a form of the hormone progesterone called etonogestrel. These are the devices that are kept under a woman's skin.
62. (c) Most combination birth control pills come in either a 21-day pack or a 28-day pack. One hormone pill is taken each day at about the same time for 21 days. Depending on the pack, the birth control pills are either stopped for 7 days or a pill that contains no hormones is taken for 7 days. During the week that a woman is taking no pills or pills that don't contain hormones, she has menstruation.
64. (c) Pills having vasopressin is used to treat diabetes insipidus, which is caused by lack of a naturally occurring pituitary hormone in the body. Vasopressin is also used to treat or prevent certain conditions of the stomach after surgery or during abdominal X-rays. While the options are representing the methods of contraception.
65. (a) MTP refers to the medical termination of pregnancy. It is done to get rid of unwanted pregnancies. It is safe if it is performed up to 12 weeks or first trimester of pregnancy.



66. (d) Intrauterine Insemination (IUI) is a fertility treatment that involves placing sperm inside a woman's uterus to facilitate fertilisation. The goal of IUI is to increase the number of sperm that reach the fallopian tubes and subsequently increase the chance of fertilisation.
68. (d) Amniocentesis is a pre-natal diagnostic test based on the chromosomal pattern of the cells in the amniotic fluid that surrounds the developing foetus in the womb. It is misused to detect the sex of pre-born child that leads to female foeticide.
69. (a) Gamete intrafallopian transfer (GIFT) is a tool of assisted reproductive technology against infertility. Eggs are removed from a woman's ovaries, and placed in one of the fallopian tubes along with the man's sperm.
70. (b) The cause of syphilis is a bacterium called *Treponema pallidum* and Gonorrhoea is caused by the bacterium *Neisseria gonorrhoeae*.
71. (b) LNG -20 and Progestasert are both a kind of hormone-releasing IUDs. They release a hormone called as levonorgestrel. These are used for birth control.
74. (a) Demography is the study of human populations—their size, composition and distribution across space—and the process through which populations change. Births, deaths and migration are the 'big three' of demography, jointly producing population stability or change.
75. (b) India was amongst the first countries in the world to initiate action plans and programmes at a national level to attain total reproductive health as a social goal. These programmes called 'family planning' were initiated in 1951 and were periodically assessed over the past decades.
76. (b) *Saheli* is a mini pill. It is taken in a week after an initial intake of twice a week dose for three months. It contains a non-steroidal preparation called centchroman. It is developed by Central Drug research Institute (CDRI), Lucknow.
78. (d) *Saheli* –the oral contraceptive for the females contains a non-steroidal preparation. It is a 'once a week' pill with very few side effects and high contraceptive value.
80. (d) It is used as an emergency contraceptive tablet to prevent unwanted pregnancy in case of unprotected sex or contraception failure. As the name suggests, it should be taken as soon as possible, preferably within 72 hours of unprotected sex. This tablet contains levonorgestrel as an active ingredient.
82. (c) Tubectomy is a surgical method of contraception. It involves removal of fallopian tubes. It is an irreversible method of contraception.
84. (b) Genital herpes is a common sexually transmitted infection caused by the herpes simplex virus (HSV).
85. (c) *i-pill* is used as an emergency oral contraceptive tablet to prevent unwanted pregnancy in case of unprotected sex or contraception failure.
86. (a) In IVF (*In vitro* fertilisation) method, popularly known as test tube baby programme, ova from the wife/donor (female) and sperms from the husband/donor (male) are collected and are induced to form zygote under simulated conditions in the laboratory.
89. (d) Candidiasis is a fungal infection caused by a yeast (a type of fungus) called *Candida*.
92. (a) Chlamydiasis is a sexually transmitted infection (STI) caused by the bacterium *Chlamydia trachomatis*.
94. (a) A test-tube baby is a baby that develops from an egg which has been removed from the mother's body, fertilised, and then replaced in her womb in order that it can continue developing.



95. (b) Prolactin stimulates milk biosynthesis within the alveolar cells of the breast and oxytocin stimulates contraction of the myoepithelial cells that surround the alveoli, causing the milk to be ejected into the ducts leading to the nipple.
98. (a) ZIFT stands for Zygote Intra Fallopian Transfer
99. (d) IUD stands for intrauterine device and is shaped like a “T” which fits inside the uterus. It prevents pregnancy by stopping sperm from reaching and fertilising eggs.
100. (b) Barrier methods include the diaphragm, cervical cap, male condom and female condom and spermicidal foam, sponges, and film. Unlike other methods of birth control, barrier methods are used only when you have sexual intercourse.
102. (c) Currently, the law prescribes that the minimum age of marriage is 21 years and 18 years for men and women respectively. The minimum age of marriage is distinct from the age of majority which is gender-neutral. An individual attains the age of majority at 18 as per the Indian Majority Act, 1875.

