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Reproductive health means a total well-being in all aspects of reproduction. It includes physical, emotional, behavioural and social well-being. India introduced a number of programmes to ensure reproductive health to all in 1951. E.g. reproductive health programmes and family planning.

**Aims of reproductive and child health care (RCH) programmes**
- **To aware people about reproductions related aspects:** Sexually transmitted diseases (STDs) such as AIDS, gonorrhoea etc. are transmitted from one individual to another through sexual contact. It can also lead to unwanted pregnancies. Hence, it is necessary to create awareness among people especially the youth, regarding various reproduction related aspects as the young individuals are the future of the country and they are most susceptible of acquiring sexually transmitted diseases.
- **To create a reproductively healthy society:** Spreading awareness regarding uncontrolled population growth and social evils among young individuals will help in bringing up a reproductively healthy society.

**How has the Government taken measures?**
- Several audio visual aids and pamphlets have been developed by both governmental and non-governmental organisations.
- Awareness is being created among school children by introducing sex education in schools.

**Aims and needs of sex education in schools**
- To provide right information about sex-related aspects.
- To avoid sex-related myths and misconceptions.
- Proper information about reproductive organs, adolescence and related changes, safe and hygienic sexual practices, sexually transmitted diseases (STD), AIDS etc.

**POPULATION EXPLOSION**
- In 1900 the world population was around 2 billion (2000 million). By 2000, it rocketed to about 6 billion.
- In India, population was nearly 350 million at the time of independence. It crossed 1 billion in May 2000. It means every sixth person in the world is an Indian.
- According to the 2001 census report, the population growth rate was still around 1.7% (i.e. 17/1000/year), a rate at which our population could double in 33 years.

**Reasons for Population Explosion**
- Increased health facilities and better living conditions.
- A rapid decline in death rate, maternal mortality rate (MMR) and infant mortality rate (IMR).
- Increase in number of people in reproducible age.

**Impacts of Population Explosion**
- It has led to scarcity of basic requirements such as food, shelter and clothing. Therefore, it is necessary to check this increase in population.

**Control Measures to Check Population Explosion**
- Motivate smaller families by using contraceptive methods.
- Aware peoples about a slogan *Hum Do Hamare Do* (we two, our two). Many couples have adopted a ‘one child norm’.
- Statutory rising of marriageable age of the female (18 years) and males (21 years).

**BIRTH CONTROL**
- It is essential to ensure birth control to check the population growth.
- Governments have come out with various programmes that encourage smaller families by means of various contraceptive methods.
- Contraceptive devices are used to prevent unwanted pregnancy and to prevent the spreading of STDs.

**Contraceptive Method**
- Contraceptive methods are of two types:
  - Natural method of contraception
  - Artificial means of contraception
An ideal contraceptive should be

- User-friendly, easily available, effective and reversible.
- No or least side-effects.
- It should not interfere with sexual drive, desire and sexual act.

1. **Natural/Traditional methods**

   It works on the principle of avoiding chances of ovum and sperms meeting. It includes

   (i) **Periodic abstinence**: It involves avoiding of coitus from days 10 to 17 of the menstrual cycle, when ovulation could be expected. The chances of fertilization are very high in this period. It is called fertile period.

   (ii) **Coitus interruptus (withdrawal)**: It involves withdrawal of penis from the vagina just before ejaculation, so as to avoid insemination into the vagina.

   (iii) **Lactational amenorrhea**: It involves the prevention of conception by breastfeeding the child. Ovulation and the cycle do not occur during the period of lactation. It has no side effect. However, this is effective up to 6 months following parturition. A chance of failure of this method is high.

2. **Artificial methods**

   (A) **Barrier methods**

   - This method prevents the physical meeting of sperm and ovum. It is available for both male and female partners.

   (i) **Condoms**: Condoms are made of rubber/latex sheath. They are used to cover the penis in male or vagina and cervix in the female. They are used just before coitus so that the semen does not enter into female reproductive tract.

   Condoms are very popular because:

   - It protects the user from STDs and AIDS.
   - It is disposable.
   - It can be self-inserted and thereby give privacy to user.

   (ii) **Diaphragms, cervical caps and vaults**:

   - These are barriers made of rubber that are inserted into the female reproductive tract to cover the cervix during coitus.
   - They prevent conception by blocking the entry of sperms through the cervix.
   - They are reusable.

   (iii) **Spermicidal creams, jellies and foams** are used along with the barriers to increase contraceptive efficiency.

   (B) **Intra Uterine Devices (IUDs)**: These devices are used only by female. These are inserted by doctors or expert nurses in the uterus through vagina.

   - This includes

     (i) Non-medicated IUDs (*E.g.* Lippes loop)
     (ii) Copper releasing IUDs (*E.g.* CuT, Cu7, Multiload 375)
     (iii) Hormone releasing IUDs (*E.g.* Progestasert, LNG-20):

       - It makes the uterus unsuitable for implantation and the cervix hostile to the sperms.

       - IUDs increase phagocytosis of sperms. The Cu ions suppress motility and fertilising capacity of sperms.

       - IUDs are ideal contraceptives for the females who want to delay pregnancy or space children.

   (C) **Oral contraceptives**

   - This method is used by female only.
   - It is used in the form of tablets, hence known as pills.
   - They contain hormones- either progestogens or progestogen–estrogen combinations.

   - Pills are taken daily for 21 days starting within the first five days of menstrual cycle. After a gap of 7 days (during which menstruation occurs) it has to be repeated in the same pattern till the female desires to prevent conception.

   - They inhibit ovulation and implantation as well as alter the quality of cervical mucus to prevent entry of sperms.

   - Pills are very effective with lesser side effects.

   - *E.g.* Saheli: It is a non-steroidal preparation used as oral contraceptive pills. It is a ‘once a week’ pill with very few side effects and high contraceptive value.

   (D) **Injectables**

   - It involves usage of hormone- Progestogens alone or in combination with oestrogen, by females as injections or implants under skin.

   - Their mode of action is similar to that of pills. It is very effective for longer periods.

   (E) **Emergency contraceptives**

   - These are used within 72 hours of coitus, rape or causal unprotected intercourse.

   - It involves administration of Progestogens or progestogen-oestrogen combinations and IUDs.

   (F) **Surgical methods (also known as sterilization methods)**

   - It is the permanent or terminal method to prevent pregnancy.

   - This method blocks the transport of gamete, thereby preventing conception. It is very effective but reversibility is poor.

   - It includes:

     (i) **Vasectomy**: It is the sterilization procedure in males.

     - In this, a small part of the vas deferens is removed or tied up through a small incision on the scrotum.

     (ii) **Tubectomy**: It is the sterilization procedure in females.

     - In this, a small part of the fallopian tube is removed or tied up through a small incision in the abdomen or through vagina.
**Side effects of anti-natural contraceptives**

Nausea, abdominal pain, breakthrough bleeding, irregular menstrual bleeding, breast cancer etc.

**MEDICAL TERMINATION OF PREGNANCY (MTP)**

- The Intentional or voluntary termination of pregnancy before full term is known as MTP.
- It is also known as induced abortion.
- About 45 to 50 million MTPs are performed in a year all over the world (i.e. 1/5th of total number of conceived pregnancies).
- It has a significant role in decreasing population. Sometimes, it becomes essential when continued pregnancy may prove to be fatal to the mother, foetus or both.
- MTPs are safe during the first trimester, (up to 12 weeks of pregnancy). 2nd trimester abortions are very risky.
- Government of India legalised MTP in 1971 with some strict conditions to check indiscriminate and illegal female foeticides.

**Importance of MTP**

- MTP is used to avoid unwanted pregnancies due to casual intercourse or failure of the contraceptive used during coitus or rapes.
- It is essential in cases where continuation of the pregnancy could be harmful to the mother or to the foetus or both.

**Problems related with MTPs**

- Majority of the MTPs are performed illegally.
- Misuse of amniocentesis (a foetal sex determination test based on the chromosomal pattern in the amniotic fluid). If the foetus is female, it is followed by MTP. Such practices are dangerous for the young mother and foetus.

**Amniocentesis:**

- Amniocentesis is a prenatal diagnostic technique that is used to determine the sex and metabolic disorders of the developing foetus in the mother’s uterus through the observation of the chromosomal pattern.

**SEXUALLY TRANSMITTED DISEASES (STDs)**

- Diseases transmitted through sexual intercourse are called sexually transmitted diseases (STDs).
- It is also known as Venereal diseases (VD) or Reproductive tract infections (RTI).
- Some of the STDs are: Gonorrhoea, syphilis, genital herpes, chlamydiasis, genital warts, trichomoniasis, hepatitis-B and AIDS.
- Except hepatitis-B, genital herpes and HIV infections, others diseases are completely curable if detected early and treated properly.

**Early Symptoms**

- Itching, fluid discharge, slight pain, swellings, etc., in the genital region.
- STDs remain asymptomatic in female and remain undetected for long.
- When not detected and treated in time, it may lead to pelvic inflammatory diseases (PID), abortions, still births, ectopic pregnancies, infertility, cancer of the reproductive tract etc.
- All persons are vulnerable to STDs. These are very high among persons in the age group of 15-24 years.
- Therefore, prevention and timely detection and cure of these diseases are essential to ensure reproductive health.

**Prevention**

- Avoid sex with unknown partners/multiple partners.
- Always use condoms during coitus.
- In case of doubt, go to a qualified doctor for early detection and get complete treatment.

**INFERTILITY**

- It is the inability of couple to produce baby even after unprotected intercourse.
- The reasons for this may be physical, congenital, diseases, drugs, immunological or even psychological.
- Problems of infertility may be in male or female.
- Infertility clinic can help diagnose and treat infertility.
- In case there are no corrections possible, some special technologies called assisted reproductive technologies (ART) can be used to have children.
ASSISTED REPRODUCTIVE TECHNOLOGIES (ART)

1. **In vitro fertilisation (IVF- Test tube baby programme):**
   In this method, ova from the wife/donor and sperms from the husband/donor are collected and are induced to form zygote under simulated conditions in the laboratory. This is followed by **Embryo transfer (ET).**
   It is of two types:
   (a) **Zygote intra fallopian transfer (ZIFT):** It involves transfer of zygote or early embryos (with up to 8 blastomeres) into fallopian tube.
   (b) **Intra uterine transfer (IUT):** It involves transfer of embryos with more than 8 blastomeres into the uterus.
   The babies thus produced from this method are known as test tube babies.
   Embryo formed by **in vivo fertilisation** (fertilisation within the female) can also be used for such transfer to assist those females who cannot conceive.

2. **Gamete intra fallopian transfer (GIFT)**
   It is the method of transfer of gamete (ovum) from a donor into the fallopian tube of another female who is unable to produce ovum, but can provide right conditions for fertilization and development of an embryo.

3. **Intra cytoplasmic sperm injection (ICSI):**
   It is a laboratory procedure in which a single sperm (from male partner) is injected directly into an egg (from female partner). Then the fertilised egg is implanted into the woman’s uterus.

4. **Artificial insemination (AI) technique:**
   - It is the method of transferring semen (sperm) collected from the husband or a healthy donor into the vagina or the uterus (IUI – **intra-uterine insemination**) of the recipient female.
   - This technique is useful for the male partner having inability to inseminate female or has low sperm counts.

5. **Surrogacy**
   - Here, a woman (surrogate mother) bears a child for a couple unable to produce children, because the wife is infertile or unable to carry.
   - The surrogate is impregnated either through artificial insemination or through implantation of an embryo produced by **in vitro** fertilisation.

**Problems of ART**
- It requires high precision handling by specialized professionals and expensive instrumentation. Therefore, these facilities are available only in very few centres.
- It has emotional, religious and social problems.

**Legal adoption** is one of the best methods for couples looking for parenthood.
1. **GIFT is**
   (a) Embryo implantation after *in vivo* fertilization
   (b) Sperm injection for *in vivo* fertilization
   (c) Embryo implantation after *in vitro* fertilization
   (d) Egg implantation for *in vitro* fertilization

2. The most important component of the oral contraceptive pills is –
   (a) progesterone  (b) growth hormone
   (c) thyroxin  (d) luteinizing hormone

3. Amniocentesis is the withdraw of amniotic fluid in –
   (a) menopause  (b) lactation
   (c) gestation  (d) pregnancy

4. Action of vaginal diaphragm is –
   (a) prevent the ova to come in the uterus
   (b) prevent the sperm to come in contact with ova
   (c) spermicidal
   (d) anti-implantational

5. Surgical removal or cutting and ligation of the ends of oviduct is known as –
   (a) Tubectomy  (b) Oviductomy
   (c) Vasectomy  (d) Ovariectomy

6. Surgical removal of testes is known as –
   (a) Testectomy  (b) Gonadectomy
   (c) Castration  (d) None of these

7. *In vitro* fertilisation is a technique that involves transfer of which one of the following into the fallopian tube ?
   (a) Zygote only
   (b) Embryo only, upto 8 cell stage
   (c) Either zygote or early embryo upto 8 cell stage
   (d) Embryo of 32 cell stage

8. Removal of a segment surgically and ligation of cut ends of vas deferens is known as –
   (a) Tubectomy  (b) Vasectomy
   (c) Gonadectomy  (d) Castration

9. Test-tube baby means a baby born when –
   (a) It develops from a non-fertilized egg
   (b) It developed in a test-tube
   (c) It is developed through tissue culture method
   (d) The ovum is fertilised externally and thereafter implanted in the uterus

10. The chemical method of contraception includes –
    (a) Jellies only
    (b) Creams and foams only
    (c) Oral contraceptives only
    (d) All of the above

11. Test-tube babies are produced by –
    (a) Fertilising the egg removed from the body of the female with the husband’s sperm outside in vitro culture. The zygote is transferred back to mother’s uterus
    (b) External fertilisation and development in vitro culture till 32 cells stage before putting the embryo back into mother’s uterus
    (c) Complete development of a baby *in vitro*
    (d) Development upto 32 cells stage and transplanting embryo in the uterus of a surrogate mother

12. Which one of the following is tested by the technique of amniocentesis ?
    (a) Biochemical abnormalities in the foetus
    (b) Errors of metabolism in the foetus
    (c) Chromosomal abnormalities in the foetus
    (d) All of the above

13. MTP is practised mainly to –
    (a) get rid of unwanted female child legally.
    (b) get rid of unwanted pregnancies due to failure of contraception of rapes.
    (c) both (a) and (b).
    (d) decrease population size.

14. Foetal sex can be determined by examining cells from the amniotic fluid by looking for–
    (a) Barr bodies  (b) Autosomes
    (c) Chiasmata  (d) Kinetochore

15. Which of the following is a method for birth control ?
    (a) IUDs  (b) GIFT
    (c) HTF  (d) IVE-ET

16. In amniocentesis, the fluid is taken from –
    (a) foetal blood
    (b) mother’s blood
    (c) body fluid of mother
    (d) fluid surrounding foetus

17. Progesterone pill helps in preventing pregnancy by not allowing –
    (a) ova formation  (b) gertilization
    (c) implantation  (d) None of these

18. Action of contraceptive is –
    (a) prevent the ovulation only
    (b) prevention of ovulation and fertilization only
    (c) prevention of ovulation, fertilization and implantation only
    (d) prevent the rapid passing of eggs in oviduct

    (a) follicle stimulating hormone
    (b) luteinizing hormone
    (c) both (a) and (b)
    (d) None of these
20. Which of the following is not true about the birth control pill?
   (a) The pill works by preventing ovulation.
   (b) The pill works by preventing implantation.
   (c) The ovarian cycle is suspended by the birth control pill.
   (d) The birth control pill contains low doses of estrogen and progesterone.

21. Progestasert and LNG-20 are
   (a) implants
   (b) copper releasing IUDs
   (c) non-medicated IUDs
   (d) hormone releasing IUDs

22. The copper ions of IUDs
   (a) suppress the motility and fertilization capacity of sperms
   (b) make the uterus unsuitable for implantation
   (c) increase phagocytosis of sperms
   (d) make cervix hostile to sperms

23. Which of the following birth control measures can be considered as the safest?
   (a) The rhythm method
   (b) The use of physical barriers
   (c) Termination of unwanted pregnancy
   (d) Sterilization techniques

24. Correct statement with reference to a test tube baby is:
   (a) the fertilized egg is placed in the womb of the mother where the gastrula period is completed.
   (b) unfertilized egg is placed in the womb and allowed to grow parthenogenetically.
   (c) a prematurally born baby is reared in an incubator.
   (d) fertilized egg is taken out and grown in a large test-tube.

25. Using which contraceptive also provides protection from contracting STDs and AIDS?
   (a) Diaphragms
   (b) Spermicidal foams
   (c) Condoms
   (d) Lactational amenorrhoea

26. Action of contraceptive is
   (a) to prevent the ovulation only.
   (b) prevention of ovulation and fertilization only.
   (c) prevention of ovulation, fertilization and implantation only.
   (d) prevent the rapid passing of eggs in oviduct.

27. The diaphragm, cervical cap and vaults are
   (a) disposable contraceptive devices
   (b) reusable contraceptives
   (c) IUDs
   (d) Implants

28. Condoms are barriers that cover
   (a) penis in male and ovary in female.
   (b) penis in male and cervix and vagina in female.
   (c) scrotum in male and cervix and vagina in female.
   (d) cervix in male and vagina in female.

29. In amniocentesis, the fluid is taken from
   (a) foetal blood
   (b) mother’s blood
   (c) body fluid of mother
   (d) fluid surrounding foetus

30. Test-tube baby means a baby born when
   (a) it develops from a non-fertilized egg
   (b) it developed in a test tube
   (c) it is developed through tissue culture method
   (d) the ovum is fertilised externally and thereafter implanted in the uterus

31. Birth control pills check ovulation in female by inhibiting the secretion of
   (a) follicle stimulating hormone (FSH)
   (b) luteinizing hormone (LH)
   (c) both (a) and (b)
   (d) None of these

32. What is the full form of IUDs?
   (a) Inter Uterine Devices
   (b) Intra Uterine Diseases
   (c) Intra Uterine Devices
   (d) Inter Uterine Diseases

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**Exercise - 2**

1. The permissible use of the technique amniocentesis is for
   (a) detecting sex of the unborn foetus
   (b) artificial insemination
   (c) transfer of embryo into the uterus of the surrogate mother
   (d) detecting any genetic abnormality

2. Copper-T is a device that prevents
   (a) implantation of blastocyst
   (b) ovulation
   (c) fertilization
   (d) egg maturation

3. Cu ions released from copper - releasing Intra Uterine Devices (IUDs):
   (a) make uterus unsuitable for implantation
   (b) increase phagocytosis of sperms
   (c) suppress sperm motility
   (d) prevent ovulation

4. Which one of the following is the most widely accepted method of contraception in India, as at present?
   (a) Cervical caps
   (b) Tubectomy
   (c) Diaphragms
   (d) IUDs. (Intra uterine devices)

5. Medical Termination of Pregnancy (MTP) is considered safe up to how many weeks of pregnancy?
   (a) Eight weeks
   (b) Twelve weeks
   (c) Eighteen weeks
   (d) Six weeks
6. The technique called gamete intrafallopian transfer (GIFT) is recommended for those females:
(a) who cannot produce an ovum
(b) who cannot retain the foetus inside uterus.
(c) whose cervical canal is too narrow to allow passage for the sperms
(d) who cannot provide suitable environment for fertilisation

7. What is the figure given below showing in particular?

(a) Ovarian cancer (b) Uterine cancer
(c) Tubectomy (d) Vasectomy

8. The test-tube Baby Programme employs which one of the following techniques?
(a) Intra cytoplasmic sperm injection (ICSI)
(b) Intra uterine insemination (IUI)
(c) Gamete intra fallopian transfer (GIET)
(d) Zygote intra fallopian transfer (ZIFT)

9. Progestasert and LNG-20 are
(a) implants (b) copper releasing IUDs
(c) non medicated IUDs (d) hormone releasing IUDs

10. Oral contraceptive pills are composed of
(a) progestogens only
(b) progestogen and estrogen combination
(c) progestogen-testosterone combination
(d) both (a) or (b)

11. Which of the following cannot be detected in a developing foetus by amniocentesis?
(a) Sex of the foetus
(b) Down syndrome
(c) Jaundice
(d) Klinefelter syndrome

12. One of the legal methods of birth control is:
(a) by abstaining from coitus from day 10 to 17 of the menstrual cycle
(b) by having coitus at the time of day break
(c) by a premature ejaculation during coitus
(d) abortion by taking an appropriate medicine

13. Artificial insemination mean:
(a) Transfer of sperms of husband to a test tube containing ova
(b) Artificial introduction of sperms of a healthy donor into the vagina
(c) Introduction of sperms of a healthy donor directly into the ovary
(d) Transfer of sperms of a healthy donor to a test tube containing ova

14. One of the following is not a method of contraception – which one?
(a) Tubectomy
(b) Condoms
(c) Pills of a combination of oxytocin and vasopressin
(d) Lippes loop

15. Which one of the following statements is correct regarding Sexually Transmitted Diseases (STD)?
(a) The chances of a 5 year boy contacting a STD are very little
(b) A person may contact syphilis by sharing milk with one already suffering from the disease
(c) Haemophilia is one of the STD
(d) Genital herpes and sickle-cell anaemia are both STD

16. The stage transferred into the uterus after induced fertilization of ova in the laboratory is:
(a) Zygote
(b) Embryo at 4 blastomere stage
(c) Embryo at 2 blastomere stage
(d) Morula

17. The accompanying diagram shows the uterine tubes of four women (PQ,R and S).

18. Match Column -I with Column - II.

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Mode of Action</td>
</tr>
<tr>
<td>A. The pill</td>
<td>1. Prevents sperms reaching cervix</td>
</tr>
<tr>
<td>B. Condom</td>
<td>2. Prevents implantation</td>
</tr>
<tr>
<td>C. Vasectomy</td>
<td>3. Prevents ovulation</td>
</tr>
<tr>
<td>D. Copper T</td>
<td>4. Semen contains no sperms</td>
</tr>
</tbody>
</table>

(a) A → (3); B → (1); C → (4); D → (2)
(b) A → (4); B → (1); C → (2); D → (3)
(c) A → (3); B → (4); C → (1); D → (2)
(d) A → (2); B → (3); C → (1); D → (4)
19. Match Column -I with Column - II.

<table>
<thead>
<tr>
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<tr>
<td>A. Non-medicated IUDs</td>
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</tr>
<tr>
<td>B. Hormone releasing IUDs</td>
<td>2. Multiload 37</td>
</tr>
<tr>
<td>C. Copper releasing IUDs</td>
<td>3. CuT</td>
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<td></td>
<td>4. Cu7</td>
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<td></td>
<td>5. LNG-20</td>
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<td></td>
<td>6. Progestasert</td>
</tr>
</tbody>
</table>

(a) A → (a); B → (2, 6); C → (3, 4, 5)
(b) A → (a); B → (5, 6); C → (2, 3, 4)
(c) A → (b); B → (5, 6); C → (1, 3, 4)
(d) A → (b); B → (1, 6); C → (3, 4, 5)

20. 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 up to two years.
3. Intrauterine devices like copper-T are effective contraceptives.
4. Contraception pills may be taken up to one week after coitus to prevent conception.

Which two of the above statements are correct?

(a) 1 and 2 (b) 3 and 4 (c) 1 and 3 (d) 1 and 2

21. Reproductive health in society can be improved by –

1. Introduction of sex education in schools.
2. Increased medical assistance.
3. Awareness about contraception and STDs.
4. Equal opportunities to male and female child.
5. Ban on aminocentesis.
6. Encouraging myths and misconceptions.

Which two of the above statements are correct?

(a) All of these (b) 1, 2, 4 and 6 (c) 1, 2, 3, 4 and 5 (d) 2 and 5

22. What is true for "Lactational amenorrhoea fall?"

1. It means absence of menstruation.
2. Ovulation does not occur during the lactational period.
3. Chances of failure of contraception are almost nil up to six months following parturition.
4. Side effects are almost nil.
5. Contraceptive efficiency reduces after the period of intense lactation.
6. It is a natural method of contraception.
7. It increases phagocytosis of sperms.

(a) 2, 3, 4, 5 and 6 (b) All except 7 (c) 2, 3 and 4 (d) All of these

23. IUDs-

1. Increase phagocytosis of sperms.
2. Release Cu ions that suppress sperm motility and fertilising capacity of sperms.
3. Make the uterus unsuitable for implantation.
4. Make the cervix hostile to sperms.
5. Prevent semen from entering the female reproductive tract.

(a) 1, 2, 3, 4 and 5 (b) 1, 2, 3 and 4 (c) 1 and 2 (d) 2, 3 and 4

DIRECTIONS for Qs. 24 & 25: Each questions contain STATEMENT-1 (Assertion) and STATEMENT-2 (Reason). Each question has 4 choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

(a) Statement-1 is True, Statement-2 is True, Statement-2 is a correct explanation for Statement -1
(b) Statement -1 is True, Statement -2 is True ; Statement-2 is NOT a correct explanation for Statement -1
(c) Statement -1 is True, Statement -2 is False
(d) Both the Statements are False.

24. Statement 1 : Test-tube baby has raised several legal problems.

Statement 2 : It involves in vitro fertilization followed by embryo transfer.

25. Statement 1 : Copper-T is an effective contraceptive device in human females.

Statement 2 : Copper-T prevents passage of sperms from vagina upwards into fallopian tubes.
EXERCISE - 1

1. (b) 2. (a)
3. (d) Amniotic fluid is secreted by amnion of foetus during pregnancy.
4. (b) 5. (a)
6. (c) Permanent method of birth control in which testes are surgically removed, is called castration.
7. (c) 8. (b) 9. (d)
10. (d) 11. (b) 12. (c)
13. (b) 14. (a)
15. (a) Intra uterine device (Copper-T) inhibit fertilization and help in birth control.
16. (d) 17. (a) 18. (b)
19. (c)
20. (b) The birth control pill interferes with the maturation of the follicles and the ova, inhibiting release of an egg.
21. (d) 22. (a)
23. (d) Sterilization techniques can be considered as the safest birth control measures. It provides a permanent and sure birth control. It is called vasectomy in male and tubectomy in female.
24. (a) For test-tube babies, fertilization of egg is done in vitro and the zygote at gastrula stage is implanted in the womb of the mother.
25. (c) 26. (b) 27. (b)
28. (b) Condoms are barriers made of thin rubber/latex sheath that are used to cover the penis in the male or vagina and cervix in the female, just before coitus so that the ejaculated semen would not enter into the female reproductive tract. This can prevent conception.
29. (d) In amniocentesis the fluid is taken from aminotic fluid, which is immediate surrounding of foetus.
30. (d) Test-tube baby means ovum fertilised outside the mother body and then implanted in uterus for growth and development.
31. (c) 32. (c)

EXERCISE - 2

1. (d) Amniocentesis involves prenatal diagnosis of metabolic error and other genetic abnormalities.
2. (a) Copper ‘T’ is an intrauterine device which prevents the fertilized egg becoming implanted in the wall of the womb.
3. (c) Cu ions released by copper releasing intra uterine devices suppresses sperm motility. Intra-uterine devices are inserted by doctors in the uterus through vagina. They are available as the non-medicated IUDs, copper releasing IUDs and hormonereleasing IUDs.
4. (d) Intra uterine device (IUD) is a method of contraception in India. The IUD is inserted in the woman’s uterus through the cervix.
5. (b) Medical termination of pregnancy is considered safe up to twelve weeks of pregnancy.
6. (a) Gamete intrafallopian transfer (GIFT) is recommended for those females who cannot produce an ovum. In this process, the eggs of the donor woman are removed and in a form of mixture with sperm transferred into fallopian tube of another woman who cannot produce ovum, but can provide suitable environment for fertilization. Thus in GIFT, site of fertilization is fallopian tube, not laboratory.
7. (c) The figure shows the tubectomy. This is a surgical method to prevent pregnancy in women. In tubectomy small part of the fallopian tube is removed or tied through a small cut in the abdomen or through vagina. It is very effective method but reversibility is very poor.
8. (d) Test-tube baby programme employs zygote intrafallopion transfer (ZIFT) technique. In this technique fusion of ovum and sperm is done outside the body of woman to form zygote which is allowed to divide forming 8 blastomeres, then it is transferred the fallopion tube of the woman.
9. (d) 10. (d)
11. (c) Jaundice cannot be detected in a developing foetus by amniocentesis. It is a foetal sex determination test based on chromosomal pattern in the amniotic fluid surrounding the developing embryo. It is now legally ban in India.
12. (d) Medical termination of pregnancy (MTP) or induced abortion become legal in India from 1971 with some strict conditions to avoid its misuse. Such restrictions are important to check indiscriminate and illegal female foeticides which are reported to be high in India. All the other options are of natural methods of contraception.
13. (b) In Artificial Insemination (AI) technique, the semen collected either from the husband or a healthy donor is artificially introduced either into the vagina or into the uterus (IUI – intruterine insemination) of the female.
14. (c) Oxytocin is birth hormone and acts on the smooth muscles of our body and stimulates their contraction. Vasopressin acts mainly at the kidney and stimulates resorption of water and electrolytes and reduces loss of water through urine. Hence, it is also called as anti-diuretic hormone (ADH).
15. (a) STDs are more common in 15-24 years age group. Gonorrhoea, syphilis, genital herpes, chlamydiasis, genital warts, trichomoniasis, hepatitis-B and AIDS are some of the common STDs. Haemophilia is sex-linked recessive disease, which show its transmission from unaffected carrier female to some of male progeny. Sickle cell anaemia is an autoimmune linked recessive trait in which both the partners are carrier for the gene.

16. (d) In Intra-Uterine Transfer (IUT) embryo with more than 8-blastomeres stage (morula) is used for transfer into the uterus.

17. (c)

18. (a) A. The pill — Prevents ovulation
B. Condom — Prevents sperm reaching cervix
C. Vasectomy — Semen contains no sperms
D. Copper-T — Prevent implantation.

19. (b) 20. (c)

21. (c) Reproductive health in society can be improved by creating awareness among people about various reproduction related aspects and providing facilities and support for building up a reproductively health society.

22. (b) 23. (b)

24. (b) In very rare cases, a surrogate mother may have to be used to bring up in vitro fertilized ovum to maturity. Though biological realization of a test tube baby is a remarkable achievement, it has raised several ethical and legal problems like the right over the child. The technique of in vitro fertilization followed by the embryo-transfer in the uterus of the normal female to start the development and finally leading to normal birth, is called test tube-baby.

25. (c) Intra-uterine device (IUD) Copper-T is plastic or metal object placed in the uterus by a doctor. Copper-T prevent the fertilization of the egg or implantation of the embryo.