

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

BIOLOGY

CB25

SYLLABUS : Human Reproduction

Max. Marks : 180

Marking Scheme : + 4 for correct & (–1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQs. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

1. Breast feeding suspends pregnancy due to
 - (a) post pregnancy lower levels of FSH and LH
 - (b) post pregnancy higher levels of FSH and LH which put negative check on ovulation
 - (c) inhibiting the release of LH by prolactin and thus countering the effects of LH on the ovarian follicles
 - (d) increasing the release of inhibin by prolactin and thus countering the effects of FSH on the ovarian follicles
2. The human embryo, with 8 to 16 blastomere is called
 - (a) Morula
 - (b) Blastula
 - (c) Gastrula
 - (d) Foetus
3. A person which shows the secondary sexual characters of both male and female is called –
 - (a) Intersex
 - (b) Hermaphrodite
 - (c) Bisexual
 - (d) Gynandromorph
4. Which one of the following is the correct matching of the events occurring during menstrual cycle?
 - (a) Proliferative phase: Rapid regeneration of myometrium and maturation of Graafian follicle.
 - (b) Development of corpus luteum : Secretory phase and increased secretion of progesterone.
 - (c) Menstruation: Breakdown of myometrium and ovum not fertilised.
 - (d) Ovulation: LH and FSH attain peak level and sharp fall in the secretion of progesterone.
5. The second maturation division of the mammalian ovum occurs:
 - (a) in the graafian follicle following the first maturation division
 - (b) shortly after ovulation before the ovum makes entry into the Fallopian tube
 - (c) until after the ovum has been penetrated by a sperm
 - (d) until the nucleus of the sperm has fused with that of the ovum

RESPONSE
GRID

1. (a)(b)(c)(d) 2. (a)(b)(c)(d) 3. (a)(b)(c)(d) 4. (a)(b)(c)(d) 5. (a)(b)(c)(d)

Space for Rough Work

6. Foetal ejection reflex in human female is induced by
 (a) release oxytocin from pituitary
 (b) fully developed foetus and placenta
 (c) differentiation of mammary glands
 (d) pressure exerted by amniotic fluid
7. Which one of the following statements about human sperm is correct?
 (a) Acrosome has a conical pointed structure used for piercing and penetrating the egg, resulting in fertilisation
 (b) The sperm lysine in the acrosome dissolve the egg envelope facilitating fertilisation
 (c) Acrosome serves as a sensory structure leading the sperm towards the ovum
 (d) Acrosome serves no particular function
8. Sertoli cells are found in
 (a) ovaries and secrete progesterone
 (b) adrenal cortex and secrete adrenaline
 (c) seminiferous tubules and provide nutrition to germ cells
 (d) pancreas and secrete cholecystokinin
9. The phase of menstrual cycle in humans that lasts for 7-8 days, is
 (a) follicular phase (b) ovulatory phase
 (c) luteal phase (d) menstruation
10. Cessation of menstrual cycle in women is called
 (a) menopause (b) lactation
 (c) ovulation (d) parturition
11. In human female the blastocyst
 (a) Forms placenta even before implantation
 (b) Gets implanted into uterus 3 days after ovulation
 (c) Gets nutrition from uterine endometrial secretion only after implantation
 (d) Gets implanted in endometrium by the trophoblast cells
12. Bulbourethral gland is present in
 (a) Males and is another name for Uterus masculina
 (b) Females and is another name for Bartholin's gland
 (c) Males and is another name for Cowper's gland
 (d) None of these
13. Which one of the following are rich in fructose, calcium and some enzymes?
 (a) Male accessory glands
 (b) Liver
 (c) Pancreas
 (d) Salivary glands
14. Umbilical cord has
 (a) Two arteries carrying blood to placenta and one vein returning blood to foetus
 (b) One artery carrying blood to placenta and two veins returning blood to foetus
 (c) Two arteries bringing blood to foetus and one vein carrying blood to placenta
 (d) One artery bringing blood to foetus and two veins carrying blood to placenta
15. Which of the following induces parturition ?
 (a) Vasopressin
 (b) Oxytocin
 (c) Growth hormone
 (d) Thyroid stimulating hormone
16. What happens during fertilisation in humans after many sperms reach close to the ovum?
 (a) Cells of corona radiata trap all the sperms except one
 (b) Only two sperms nearest the ovum penetrate zona pellucida
 (c) Secretions of acrosome helps one sperm enter cytoplasm of ovum through zona pellucida
 (d) All sperms except the one nearest to the ovum lose their tails
17. The part of fallopian tube closest to the ovary is
 (a) isthmus (b) infundibulum
 (c) cervix (d) ampulla
18. The chemical substance found in the surface layer of cytoplasm of spermatozoa is:
 (a) fertilizin (b) agglutinin
 (c) antifertilizin (d) hyaluronidase

**RESPONSE
GRID**

- | | | | | |
|------------------|------------------|------------------|------------------|------------------|
| 6. (a)(b)(c)(d) | 7. (a)(b)(c)(d) | 8. (a)(b)(c)(d) | 9. (a)(b)(c)(d) | 10. (a)(b)(c)(d) |
| 11. (a)(b)(c)(d) | 12. (a)(b)(c)(d) | 13. (a)(b)(c)(d) | 14. (a)(b)(c)(d) | 15. (a)(b)(c)(d) |
| 16. (a)(b)(c)(d) | 17. (a)(b)(c)(d) | 18. (a)(b)(c)(d) | | |

Space for Rough Work

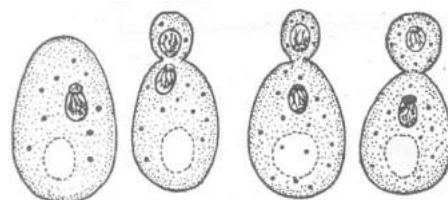
19. Which of the following diseases is caused by the under secretion of cortisol?
 (a) Anaemia
 (b) Addison's disease
 (c) Hyperglycemia
 (d) Mental illness or retardation
20. Reabsorption of chloride ions from glomerular filtrate in kidney tubule occurs by
 (a) Active transport (b) Diffusion
 (c) Osmosis (d) Brownian movement
21. If for some reason, the vasa efferentia in the human reproductive system get blocked, the gametes will not be transported from
 (a) testes to epididymis
 (b) epididymis to vas deferens
 (c) ovary to uterus
 (d) vagina to uterus
22. The nutritive cells found in seminiferous tubules are
 (a) Leydig's cells (b) atretic follicular cells
 (c) Sertoli cells (d) chromaffin cells.
23. Seminal plasma in humans is rich in
 (a) fructose and calcium but has no enzymes
 (b) glucose and certain enzymes but has no calcium
 (c) fructose and certain enzymes but poor in calcium
 (d) fructose, calcium and certain enzymes
24. The function of the secretion of prostate gland is to
 (a) inhibit sperm activity
 (b) attract sperms
 (c) stimulate sperm activity
 (d) none of these
25. The head of the epididymis at the head of the testis is called
 (d) cauda epididymis
 (b) vas deferens
 (c) caput epididymis
 (d) gubernaculum
26. Which part of ovary in mammals acts as an endocrine gland after ovulation?
 (a) Stroma
 (b) Germinal epithelium
 (c) Vitelline membrane
 (d) Graafian follicle
27. The female external genitalia include
 (i) Ovary (ii) Mammary gland
 (iii) Mons pubis (iv) Clitoris
 (a) (i) and (ii) (b) (ii) and (iii)
 (c) (iii), (iv) and (v) (d) (ii), (iii) and (v)
28. $2n = 16$ is in a primary spermatocyte which is in metaphase of first meiotic division. What shall be the total number of chromatids in each of the secondary spermatocyte?
 (a) 16 (b) 24
 (c) 32 (d) 8
29. In humans, at the end of the first meiotic division, the male germ cells differentiate into the
 (a) spermatids
 (b) spermatogonia
 (c) primary spermatocytes
 (d) secondary spermatocytes
30. The sperms undergo physiological maturation, acquiring increased motility and fertilizing capacity in
 (a) seminiferous tubules
 (b) vasa efferentia
 (c) epididymis
 (d) vagina
31. At what stage of life is oogenesis initiated in a human female?
 (a) At puberty
 (b) During menarche
 (c) During menopause
 (d) During embryonic development
32. The middle piece of the sperm contains
 (a) proteins (b) mitochondria
 (c) centriole (d) nucleus

**RESPONSE
GRID**

- | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| 19. (a) (b) (c) (d) | 20. (a) (b) (c) (d) | 21. (a) (b) (c) (d) | 22. (a) (b) (c) (d) | 23. (a) (b) (c) (d) |
| 24. (a) (b) (c) (d) | 25. (a) (b) (c) (d) | 26. (a) (b) (c) (d) | 27. (a) (b) (c) (d) | 28. (a) (b) (c) (d) |
| 29. (a) (b) (c) (d) | 30. (a) (b) (c) (d) | 31. (a) (b) (c) (d) | 32. (a) (b) (c) (d) | |

Space for Rough Work

33. Corpus luteum is developed from
(a) Graafian follicle (b) nephrostome
(c) oocyte (d) none of these
34. Spermatogenesis is induced by
(a) FSH (b) ICSH
(c) STH (d) ATH
35. Layers of an ovum from outside to inside is
(a) corona radiata, zona pellucida and vitelline membrane
(b) zona pellucida, corona radiata and vitelline membrane
(c) vitelline membrane, zona pellucida and corona radiata
(d) zona pellucida, vitelline membrane and corona radiata
36. Name the hormone that has no role in menstruation.
(a) LH (b) FSH
(c) Estradiol (d) TSH
37. The time for optimum chances of conception in a woman is _____ starting from the day of menstruation.
(a) 1st day (b) 4th day
(c) 14th day (d) 26th day
38. Repair of endometrium is undertaken by
(a) LH (b) FSH
(c) estrogen (d) prolactin
39. The sex of the foetus will be decided at
(a) fertilization by male gamete
(b) implantation
(c) fertilization by female gamete
(d) the start of cleavage
40. Match Column-I with Column-II and select the correct option from the codes given below.
- | | |
|-----------------|------------------------|
| Column-I | Column-II |
| A. Cleavage | (i) Fertilization |
| B. Morula | (ii) Mitotic divisions |
| C. Polyspermy | (iii) Endometric |
| D. Implantation | (iv) Little mulberry |
- (a) A-(ii), B-(iv), C-(i), D-(iii)
(b) A-(i), B-(iv), C-(ii), D-(iii)
(c) A-(iv), B-(ii), C-(i), D-(iii)
(d) A-(ii), B-(iv), C-(iii), D-(i)
41. Which part of the sperm plays an important role in penetrating the egg membrane?
(a) Allosome (b) Tail
(c) Autosome (d) Acrosome
42. Which of the following hormones is not a secretory product of human placenta?
(a) Human chorionic gonadotropin
(b) Prolactin
(c) Estrogen
(d) Progesterone
43. After birth, colostrum is released from mammary glands which is rich in
(a) fat and low in proteins
(b) proteins and low in fat
(c) proteins, antibodies and low in fat
(d) proteins, fat and low in antibodies
44. The correct sequence in the process of development of human embryo is
(a) fertilization—zygote—cleavage—morula—blastula—gastrula
(b) fertilization—cleavage—morula—zygote—blastula—gastrula
(c) fertilization—zygote—blastula—morula—cleavage—gastrula
(d) cleavage—zygote—fertilization—morula—blastula—gastrula
45. The given figure refers to which type of reproduction in yeast?



- (a) Binary fission (b) Budding
(c) Layering (d) Fusion

**RESPONSE
GRID**

33. (a) (b) (c) (d) 34. (a) (b) (c) (d) 35. (a) (b) (c) (d) 36. (a) (b) (c) (d) 37. (a) (b) (c) (d)
38. (a) (b) (c) (d) 39. (a) (b) (c) (d) 40. (a) (b) (c) (d) 41. (a) (b) (c) (d) 42. (a) (b) (c) (d)
43. (a) (b) (c) (d) 44. (a) (b) (c) (d) 45. (a) (b) (c) (d)

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 25 - BIOLOGY

Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	55	Qualifying Score	60
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

HINTS & SOLUTIONS

DPP/CB25

1. (c) During breast feeding, prolactin hormone (required for the release of milk) present in the blood inhibits the release of LH from pituitary. This will counter the effect of LH on the ovarian follicles and therefore no ovulation will occur. Hence, no pregnancy occurs during this period.
2. (a) 3. (d)
4. (b) The corpus luteum is essential for establishing and maintaining pregnancy in females. In the ovary, the corpus luteum secretes estrogens and progesterone, which are steroid hormones responsible for the thickening of the endometrium and its development and maintenance, respectively.
5. (b)
6. (b) Foetal ejection reflex in human female is induced by fully developed foetus and placenta. When a woman is in a lithotomy or semi-sitting position, the foetal ejection reflex is impaired and the increased pain caused by the sacrum's inability to move as the baby descends can be intolerable.
7. (b) Acrosome a small pointed structure at the tip of nucleus. It breaks down just before fertilization, releasing hydrolytic enzymes that assist penetration between follicle cells that surrounds the ovum, thus facilitating fertilization.
8. (c) Sertoli cells are found in the walls of seminiferous tubules of the testes. They anchor and provide nutrition to the developing germ cells especially the spermatids.
9. (b) In menstrual cycle, menstrual phase lasts for 4 days, proliferating/ovulating phase for about 10 days and secretory phase for 14 days.
10. (a) Menopause is the period when ovulation and menstrual cycle stop in human females. The period of menopause is between 45-55 years.
11. (d)
12. (c) The gland corresponding to this in female is Bartholin's.
13. (a) 14. (a) 15. (b) 16. (b)
17. (b) The part of fallopian tube closest to the ovary is infundibulum. Infundibulum possess finger-like projections called fimbriae that help in collection of ovum after ovulation. It leads to wider part of oviduct called ampulla. The last part of oviduct is isthmus that has a narrow lumen and joins the uterus.
18. (c) 19. (b) 20. (b)
21. (a) Vasa efferentia are fine ciliated ductules that arise from the seminiferous tubules of testis (where sperms are formed) and open into epididymis which is a mass of long, narrow, closely coiled tubule lying along the inner side of testis. Epididymis stores the sperms. Thus, if vasa efferentia get blocked, sperms will not be transported from testes to epididymis.
22. (c) Wall of each seminiferous tubule is formed of a single layered germinal epithelium. Majority of cells in this epithelium are male germ cells and at certain places, there are present tall Sertoli cells. These cells act as nurse cells providing nutrition to the developing sperms.
23. (d) Secretion of seminal vesicle, prostate gland and bulbourethral gland constitute seminal plasma which is rich in fructose, calcium and certain enzymes.
24. (c) The prostate gland is a single large gland that surrounds the urethra. It produces a slightly alkaline, milky secretion which forms 25% of the volume of semen. It possesses citric acid, enzymes (acid phosphatase, amylase, pepsinogen) and prostaglandins. Secretion of the prostate gland nourishes and activates the spermatozoa to swim.
25. (c) The epididymis is a mass of long narrow closely coiled tubule which lies along the inner side of each testis. Coiling forms three parts - upper caput epididymis or head, middle corpus epididymis or body and lower cauda epididymis or tail.
26. (d) Release of ovum from the ovary is called ovulation. The graafian follicle rises to the surface, sends out a protuberance or stigma and everts to release the ovum into peritoneal cavity. The empty Graafian follicle contains a blood clot which is called corpus haemorrhagic. Its granulosa cells continue to proliferate, develop yellow carotene pigment or lutein and get converted into lutein cells. This converts the ruptured a temporary endocrine gland secreting progesterone with small quantity of estrogen.
27. (c) The female external genitalia include mons pubis, labia majora, labia minora, hymen and clitoris.
28. (a) Secondary spermatocyte contains half the number of chromosomes i.e., 8 Each chromosome has 2 chromatids, therefore, 8 chromosomes will have 16 chromatids in all.
29. (d) During spermatogenesis, at the end of first maturation division (reductional division or meiosis), the primary spermatocyte divides into two haploid daughter cells called secondary spermatocytes.
30. (c) In the head of the epididymis, the sperms undergo physiological maturation, acquiring increased motility and fertilizing capacity.
31. (d) Oogenesis is the process of formation of functional haploid ova from the diploid germinal cells in the ovary. Oogenesis begins during embryonic development but is completed only after fertilization of the secondary oocyte with the sperm.
32. (b) The middle piece of sperm contains mitochondria coiled around the axial filament. They provide energy for the movement of the sperm.
33. (a) Release of ovum from the ovary is called ovulation. The Graafian follicle rises to the surface, sends out a protuberance or stigma and everts to release the ovum into peritoneal cavity. The empty Graafian follicle contains a blood clot which is called corpus haemorrhagic. Its granulosa cells continue to proliferate, develop yellow carotene pigment or lutein and get converted into lutein cells. This converts the ruptured a temporary endocrine gland secreting progesterone with small quantity of estrogen.
34. (a) FSH acts on the Sertoli cells and stimulate secretion of some factors which help in the process of spermiogenesis.
35. (a)
36. (d) TSH or thyroid stimulating hormone has no role in menstruation.
37. (c) On the 14th day of menstrual cycle, ovulation occurs, so chances of conception are optimum.
38. (c) Estrogen secreted from ovarian follicles under the influence of FSH, causes proliferation of the endometrium of the uterine wall.
39. (a)
40. (a)
41. (d) Acrosome, a cap like structure present at the tip of the sperm, is a lysosome like organelle derived from golgi apparatus.
42. (b) Prolactin is secreted by the anterior lobe of pituitary gland. After parturition, secretion and storage of milk in mammary glands is under the influence of this hormone.

43. (c) After birth, the first milk released by mammary glands is called colostrum. It is released for 2-3 days. It is thin, yellowish fluid containing cells from the alveoli of glandular tissue of mammary glands and is rich in protein, antibodies, but low in fat.
44. (a) Fusion of male and female gamete produces a zygote. Repeated division of the zygote is called cleavage forming a solid morula. After further division and rearrangement a fluid filled cavity surrounded by blastomeres - blastula is formed. The appearance of germ layers mark the gastrula.
45. (b) The type of reproduction shown in the given figure of yeast is budding. In budding, a daughter individual is formed from a small projection, the bud, arising from the parent body. In yeast, the division is unequal and a small bud is produced that remains attached initially to the parent body. Later on the bud gets separated and matures into a new yeast organism.