BIOLOGY

BOOKS - SRIJAN BIOLOGY (ENGLISH)

SAMPLE PAPER 2 (BIOLOGY)

Questions Choosing The Correct Option

1. The technique called Gamete Intra Fallopian Transfer (GIFT) is recommended for those females:

A. Who cannot produce an ovum

B. Who cannot retain foetus inside uterus

C. Who cannot provide suitable environment for fertilisation

D. All of these

Answer: A

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2. In a population increased IMR and decreased MMR will:

A. not cause significant change in growth rate

B. cause rapid growth rate increase

C. result in decline of growth rate

D. result in population explosion

Answer: A

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3. What is the genotype of the person suffering from Klinefelter's syndrome?

A. 44+ XXX

B. 42 + XXX

C. 44+XXY

D. 42+XXY

Answer: C

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4. What are the finger-like projections of trophoblast called?

A. Endometrium

B. Placenta

C. Chorionic villi

D. Fetus

Answer: C

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5. Which of the following is not the function of a placenta?

A. Supply of nutrients to the fetus

B. Removal of excretory products from the fetus

C. Supply of carbon dioxide to the fetus

D. Supply of oxygen to the fetus

Answer: C

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6. In the event of pregnancy, the corpus luteum persists under the influence of:

A. LH

B. FSH

C. Chorionic gonadotropin

D. progesterone

Answer: C

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7. Exine of pollen grain is formed of:

A. Callose

B. Pectocellulose

C. Lignocellulose

D. Sporopollenin

Answer: D

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8. A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above situation is:

A. Plant is monoecious

B. Plant is dioecious and bears only pistillate flowers

C. Plant is dioecious and bears.only staminate flowers

D. Plant is dioecious and bears both pistillate and staminate flowers

Answer: C

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9. In____female gametophytes stop their growth at 8 nucleate stages.

A. cleistogamous

B. chasmogamous

C. gymnosperms

D. angiosperms

Answer: D

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10. Offspring produced by sexual reproduction exhibit more variation than those produced by asexual reproduction because

A. sexual reproduction is a lengthy process.

B. gametes of parents have qualitatively different genetic composition.

C. genetic material comes from parents of two different species.

D. greater amount of DNA is involved in sexual reproduction.

Answer: B

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11. Number of chromosome pairs in human beings:

A. 23

B. 26

C. 24

D. 22

Answer: A

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12. What is the duration of juvenile phase in bamboo and interflowering period of Strobilanthes kunthiana respectively:

A. 25-300 years and 12 years

B. 3-120 years and 12 years

C. 50-100 years and 12 years

D. 50-100 years and 21 years

Answer: B

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13. The law of co-dominance is used to explain the expression of only one of the parental

characters in a monohybrid cross in __ and the expression of both in ____

A. F_1 and F_2

B. F_2 and F_3

C. F_1 and F_3

D. F_2 and F_1

Answer: A

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14. Which of the following is a recessive trait in pea plants?

A. Dwarf stem height

B. Violet flowers

C. Axial flowers

D. Inflated pod

Answer: A

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15. Experimental verification of chromosomal theory of inheritance was proposed by:

A. Tshermark

B. De Vries

C. Sutton

D. Morgan

Answer: D

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16. Study of family history about inheritance of a particular trait in several generations of a family is called:

A. Phylogeny

B. Ontogeny

C. Pedigree

D. Cladistics

Answer: C

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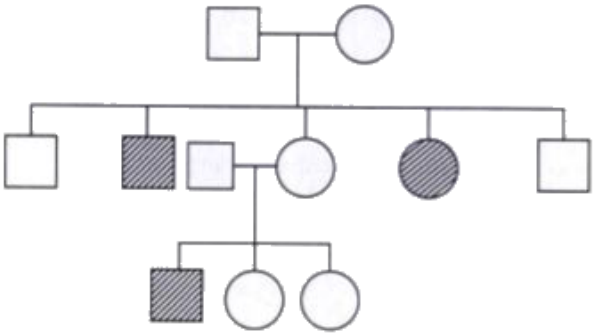
17. 

What is the mode of inheritance in the given pedigree?

A. Autosomal dominant

B. Autosomal recessive

C. X-linked dominant

D. X-linked recessive

Answer: B

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18. What approach used by Mendel was utterly new?

A. Mathematics to study biological phenomena

B. Crossing of plants

C. Growing garden pea plants

D. Emasculation

Answer: A

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19. During replication large amount of energy gets exhausted. The source of this energy is:

A. Deoxyribonucleotide triphosphate

B. Deoxyribonucleoside monophosphate

C. Deoxyribonucleoside triphosphate

D. Both (a) and (b)

Answer: C

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20. A transcription unit in DNA is defined primarily by three regions in DNA. These regions are :

A. Promoter, regulator and structural genes

B. Promoter, regulator and terminator

C. Promoter, regulator and operator genes

D. Promoter, structural genes, terminator

Answer: D

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21. Which of the following rRNA shows structural as well as functional role in bacteria ?

A. 16 s rRNA

B. 23s rRNA

C. 5s rRNA

D. 28s rRNA

Answer: B

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22. In eukaryotes as well as prokaryotes those DNA sequences that appear in mature or processed RNA are known as

A. Introns

B. Exons

C. Cistrons

D. Mutons

Answer: B

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23. Change in a single base pair of DNA can be termed as:

A. Chromosomal

B. Point mutation

C. Genomic mutation

D. Frame shift mutation

Answer: B

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24. Name the island where Darwin visited and discovered adaptive radiation.

A. Archipelago

B. Galapagos

C. Port Blair

D. Lakshadweep

Answer: B

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25. Which of the following represents the Hardy Weinberg equation?

A. $p^2 + q^2 = 1$

B. $p^2 + 2pq + q^2 = 1$

C. $p^2 + q^2 = 0$

D. $\left(p^2 + q^2\right)^2 = 1$

Answer: B

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26. In which type of natural selection the peak gets higher and narrower?

A. Stabilising selection

B. Directional selection

C. Disruptive selection

D. None of these

Answer: A

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27. The industrial melanism phenomenon demonstrates:

A. Gene mutation

B. Genetic drift

C. Natural selection

D. Migration

Answer: C

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28. A nitrogen fixing microbe associated with the fern (Azolla) in rice fields is:

A. Frankia

B. Rhizobium

C. Spirulina

D. Anabaena

Answer: D

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29. Which of the following is a non-symbiotic biofertiliser :

A. VAM

B. Azotobacter

C. Anabaena

D. Rhizobium

Answer: B

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30. BOD of waste water is estimated by measuring the amount of:

A. total organic matter

B. biodegradable organic matter

C. oxygen evolution

D. oxygen consumption

Answer: D

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31. Which of the following organism has higher number of chromosomes?

A. Housefly

B. Butterfly

C. Onion

D. Ophioglossum

Answer: D

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32. If a butterfly has chromosome number 360 in its meiocytes (2n). What will be the chromosome number in its gametes?

A. 95

B. 90

C. 190

D. 760

Answer: C

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33. Strobilanthes kunthiana differs from bamboo in:

A. being polycarpic

B. length of juvenile phase

C. being monocarpic

D. none of these

Answer: B

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34. During the process of fertilisation the pollen tube of the pollen grain usually enters the emrbyo sac through:

A. integuments

B. nucellus

C. chalaza

D. micropyle

Answer: D

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35. _____may be defined as occurrence of two or more embryos in one ovule.

A. roiyembryony

B. Nucellus

C. Parthenocarpy

D. Embryogenesis

Answer: A

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36. What is the function of germ pore?

A. Emergence of radicle

B. Absorption of water in seed germination

C. Initiation of pollen tube

D. All of these

Answer: C

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37. Endosperm is completely consumed by the developing embryo in:

A. Castor and groundnut

B. Maize and castor

C. Pea and groundnut

D. Maize and pea

Answer: C

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38. Urine test during pregnancy determines the presence of:

A. human chorionic gonadotropin hormone

B. LH

C. estrogen

D. progesterone

Answer: A

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39. Acrosome is a type of:

A. flagella

B. lysosome

C. ribosome

D. basal body

Answer: B

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40. Confirmatory test for STDs is:

A. ELISA

B. PCR

C. DNA hybridisation

D. All of these

Answer: D

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41. Assertion : Zygote is the only vital link between two generations of an organism.

Reason : Male and female gametes fuse to form a zygote.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: B

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42. Assertion : A drop of temperature does not effect spermatogenesis.

Reason : During temperature drop the smooth muscles contacts and bring the testes closer to the pelvic cavity

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: A

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43. Assertion : Nucleopolyhedrovirus used as biocontrol agent.

Reason : It kills insects and pests.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: A

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44. Assertion : Trichoderma, found in root system causes biological control of many pathogens.

Reason : The enzymes released by Trichoderma inhibits growth of many disease causing pathogens.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: A

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45. Assertion : In co-dominance, F_1 generation resembles both the parents.

Reason : An example is different type of red blood cells that determine ABO blood grouping in humans.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: A

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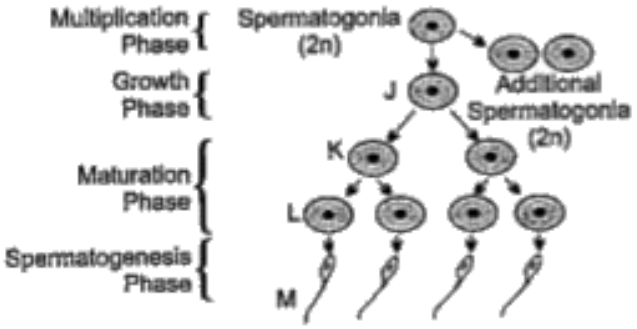
46. Read the following and answer the following questions:

In testis, the immature male germ cells produces sperms by spermatogenesis that begins at puberty. It occurs in the seminiferous tubules of the testis. Seminiferous tubules are linked by germinal epithelium. Study the diagrammatic representation below and answer the following questions:



Transformation of L into M is known as:

A. Spermatogenesis

B. Spermiation

C. Spermiogenesis

D. None of these

Answer: C

View Text Solution

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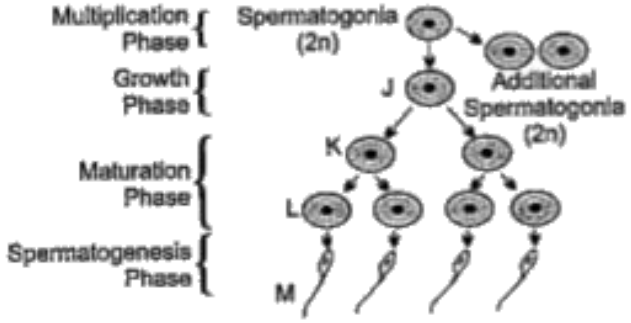


Select the correct option:

A. Larger primary spermatocyte is obtained from type A spermatogonia.

B. One spermatogonium forms two spermatids.

C. Spermiation is the release of sperms from seminiferous tubules.

D. Secondary spermatocytes are formed from primary spermatocytes after mitosis.

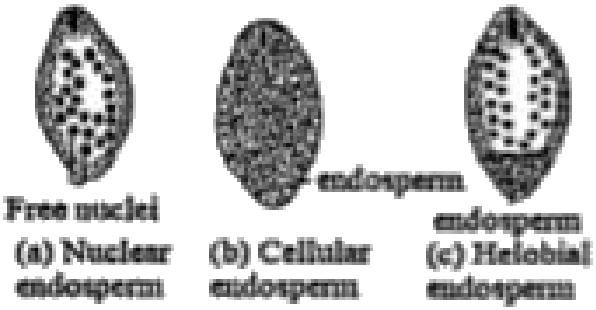
Answer: C

View Text Solution

48. Read the following and answer the following questions:

The endosperm makes the main source of food for the embryo. Generally the endosperm

nucleus divides after the division of the oospore. There are many cases when endosperm is formed even before division of oospore. There are three general types of endosperm formations: (a) nuclear type, (b) cellular type, (c) helobial type. The endosperm is usually triploid but haploid endosperm is also found. Endosperm may either be completely consumed by developing embryo before seed maturation or it may persist in the mature seed.



Coconut water is ___endosperm

A. Free nuclear

B. Cellular

C. PEN

D. nuclei

Answer: A

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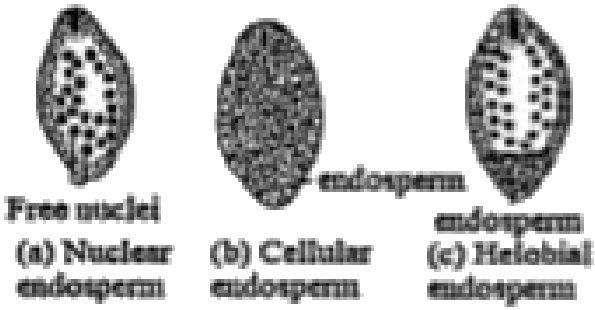

Persistent endosperm is found in:

A. Bean

B. Castor

C. Pea

D. Groundnut

Answer: B

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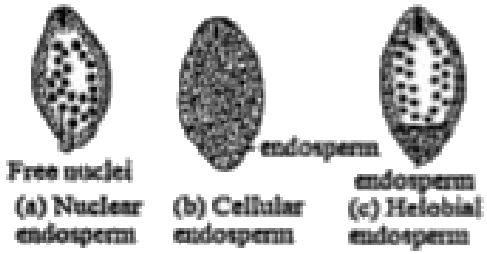

If an endosperm cell of a gymnosperm consists of 12 chromosomes, number of chromosomes in each root cell will be:

A. 4

B. 24

C. 32

D. 16

Answer: B

View Text Solution

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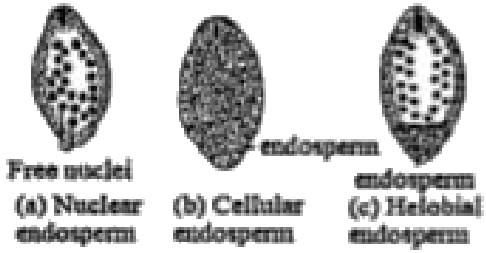

In angiosperms, normally after fertilisation:

A. the zygote divides earlier than the primary endosperm nucleus

B. the primary endosperm nucleus divides earlier than zygote

C. both the zygote and primary endosperm nucleus divide simultaneously

D. both the zygote and primary endosperm nucleus undergo resting period

Answer: B

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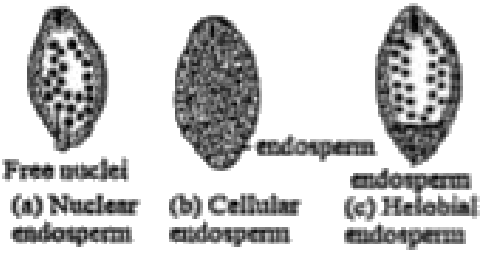

White kernel of tender coconut is:

A. free nuclear endosperm

B. helobial endosperm

C. cellular endosperm

D. nuclear endosperm

Answer: C

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53. Read the following and answer the following questions:

Enzymes are best known for their ability to catalyse biochemical reactions without undergoing any change. A large number of enzymes are being used in biotechnological industry. Most of them are obtained from microbes. Proteases degrade proteins and polypeptides. Most of the commercially applicable proteases are alkaline and are biosynthesised mainly by bacteria such as

Pseudomonas, Bacillus and some fungi like, Aspergillus. These enzymes are used in clearing beer, softening of bread and meat, degumming of silk, etc. Alkaline serine proteases have the largest applications in bio-industry. Alkaline proteases have shown their capability to work under high pH, temperature and in presence of inhibitory compounds. Another important group of enzymes is amylases. Amylolytic enzymes act on starch. These are obtained from Aspergillus, Rhizopus and Bacillus species. These are used in softening and sweetening of bread,

production of alcoholic beverages from starchy materials, clearing of turbidity in juices caused by starch, etc.

Polypeptides are degraded by

A. amylases

B. proteases

C. pectinases

D. lipases

Answer: B

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Amylolytic enzymes are not obtained from

A. Aspergillus

B. Rhizopus

C. Mucor

D. Bacillus

Answer: B

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Clearing of turbidity in juices is achieved by

A. amylases

B. pectinases

C. rennet

D. both (a) and (b)

Answer: B

View Text Solution

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Select the incorrect option from the following:

A. Enzymes are proteinaceous substances.

B. Enzymes are substrate specific.

C. Enzymes are large sized molecules.

D. Microbial enzymes can work only in normal temperature and pH.

Answer: B

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softening and sweetening of bread, production of alcoholic beverages from starchy materials, clearing of turbidity in juices caused by starch, etc.

A farmer harvests coms and prepares corn starch. He wants to prepare some corn syrup from this. For the conversion he needs to use enzyme__

A. amylase

B. glucoamylases

C. glucoisomerases

D. all of these

Answer: A

View Text Solution

58. Read the following and answer the following questions:

Translation process of polymerisation of amino acids forms a polypeptide. The order and sequence of amino acids are defined by the sequence of bases in the mRNA. The amino

acids are joined by a bond called peptides. Ribosome is the site of protein synthesis.

What is the process of activation of amino acids in the presence of ATP and its linkage to their cognate tRNA known as?

A. Charging of tRNA

B. Charging of ATP

C. Aminoacetylation of tRNA

D. Aminoacetylation of ATP

Answer: A

View Text Solution

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Translation process of polymerisation of amino acids forms a polypeptide. The order and sequence of amino acids are defined by the sequence of bases in the mRNA. The amino acids are joined by a bond called peptides. Ribosome is the site of protein synthesis.

Which of the following is the start codon?

A. VAA

B. UAG

C. AUG

D. UGA

Answer: C

View Text Solution

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Translation process of polymerisation of amino acids forms a polypeptide. The order

and sequence of amino acids are defined by the sequence of bases in the mRNA. The amino acids are joined by a bond called peptides. Ribosome is the site of protein synthesis.

Which part of mRNA contains untranslated region (UTR)?

A. 3' end

B. 5'end

C. either 3' or 5' end

D. Both 5' end and 3' end

Answer: D

View Text Solution

61. Read the following and answer the following questions:

Translation process of polymerisation of amino acids forms a polypeptide. The order and sequence of amino acids are defined by the sequence of bases in the mRNA. The amino acids are joined by a bond called peptides. Ribosome is the site of protein synthesis.

Name the enzyme that helps in combining amino acids to its particular RNA:

A. Activating enzyme

B. Amino-acyl tRNA synthetase

C. Peptidyl transferase

D. Both (a) and (b)

Answer: D

View Text Solution

62. Read the following and answer the following questions:

Translation process of polymerisation of

amino acids forms a polypeptide. The order and sequence of amino acids are defined by the sequence of bases in the mRNA. The amino acids are joined by a bond called peptides. Ribosome is the site of protein synthesis.

From the given list, select the translation machinery: (i) mRNA (ii) Ribosomes (iii) Amino acids (iv) tRNA's (v) Peptidyl transferase (vi) Amino acyl tRNA synthelase (vii) Pyrophosphatase

A. (i), (ii), (iii), (iv) and (vi)

B. (i), (ii), (iii), (iv) and (v)

C. (i), (ii), (iii), (iv), (v), (vi)

D. (i), (ii), (iii), (iv), (v), (vi), (vii)

Answer: A

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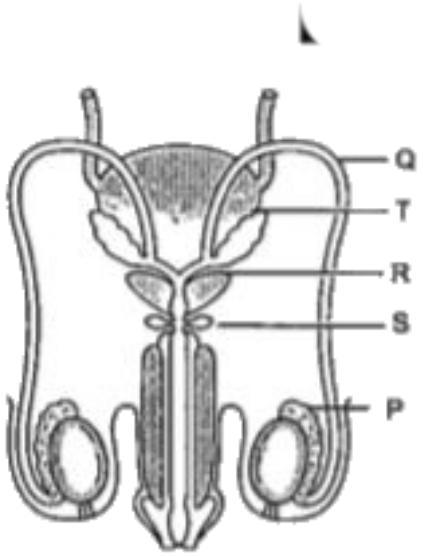
63. Read the following and answer the following questions:

Human male reproductive system comprises of a pair of testes, primary sex organs associated with formation of gametes and production of

sex hormone. Study the given figure of human male reproductive system and answer the following questions.



Which of the following is correct for labelled part P?

A. P is rete testis which transports sperms to outside

B. P is epididymis which secretes fluid that nourishes the sperms

C. P is epididymis that carries sperms and secretion from seminal vesicles

D. P is rete testes which lies along inner side of each testis and stores the sperms

Answer: B

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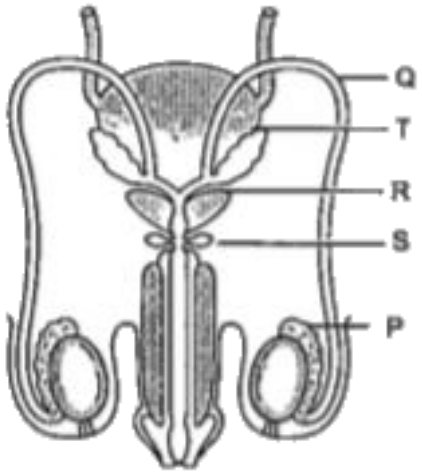

Identify the correctly matched pair:

A. Q-Vasa efferentia

B. R-Ejaculatory duct

C. S-Seminal vesicle

D. T-Cowper's gland

Answer: B

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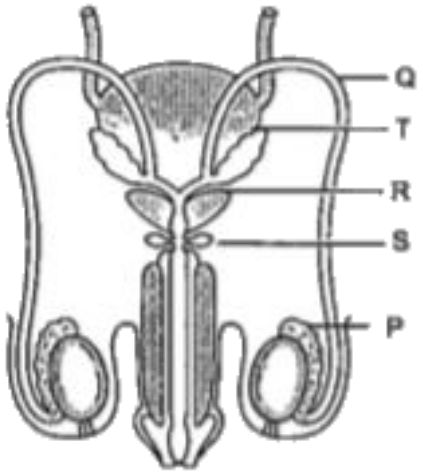

Which statements is incorrect for Q?

A. It carries spermatozoa from epididymis to ejaculatory duct

B. Q are only 2 in number

C. It arises from rete testis

D. It constitutes male sex accessory duct

Answer: C

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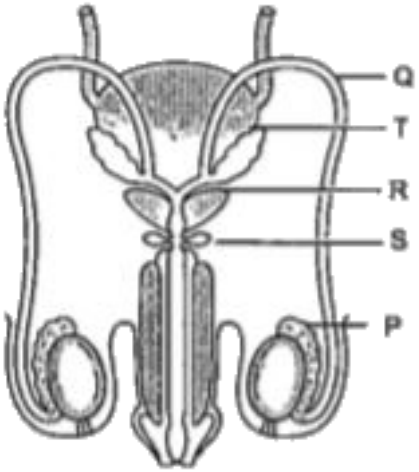

The function of the secretion of prostate gland is to:

A. inhibit sperm activity

B. attract sperms

C. stimulate sperm activity

D. none of these

Answer: C

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