



BIOLOGY

BOOKS - SRIJAN BIOLOGY (ENGLISH)

SAMPLE PAPER - 3

Questions Choosing The Correct Option

1. It is usually seen that when an orange seed is squeezed many embryos of different shapes

and sizes are revealed. This happen because of the phenomenon

- A. Polyembryony
- B. Parthenogenesis
- C. Apomixis
- D. Parthenocarpy

Answer: A



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2. The unique flowering phenomenon exhibited by *Strobilanthus kunthiana* (neelkurinji) is that it

A. reproduces by parthenocarpy

B. flowers once in 12 years

C. is a unisexual flower

D. flowers annually

Answer: B



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3. Name the event during cell division cycle that results in the gain or loss of chromosome.

A. Failure of segregation of chromosomes

B. Crossing over

C. Formation of spindle fibres

D. Formation of recombinants

Answer: A



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4. _____ is used as an atmospheric pollution indicator.

- A. Lepidoptera
- B. Lichens
- C. Lycopersicon
- D. Lycopodium

Answer: B



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5. In humans, fertilization takes place in:

A. Ampulla

B. Isthmus

C. Infundibulum

D. Uterine cavity

Answer: A



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6. The theory of survival of the fittest was given by

A. Charles Darwin

B. Hardy Weinberg

C. Hugo de Vries

D. S.L. Miller

Answer: A



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7. The bones of forelimbs of whale, bat, cheetah, and man are similar in structure, because

- A. one organism has given rise to another
- B. they perform the same function
- C. they share a common ancestor
- D. they have biochemical similarities

Answer: B



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8. Which of the event are not required for the conversion of hnRNA to mRNA?

A. Splicing

B. Tailing

C. Capping

D. Translation

Answer: D



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9. Select the odd one out.

A. AUG

B. UAA

C. UAG

D. UGA

Answer: A



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10. A genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny. What kind of disease is this?

- A. Autosomal dominant
- B. Autosomal recessive
- C. Sex-linked dominant
- D. Sex-linked recessive

Answer: D



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11. It is known that the total sum of all the frequencies of the allele is -

A. one

B. two

C. three

D. four

Answer: A



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12. Identify the cyanobacterium that can fix atmospheric nitrogen.

A. Spirulina

B. Azospirillum

C. Oscillatoria

D. Spirogyra

Answer: C



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13. Spermiation is the process of the release of sperms from:

A. Seminiferous tubules

B. Vas deferens

C. Epididymis

D. Prostate gland

Answer: A



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14. Which one of the following is not a male accessory gland?

- A. Seminal vesicle
- B. Ampulla
- C. Prostate
- D. Bulbourethral gland

Answer: B



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15. Which of the following is a mass of finger like projections on the synergid wall?

A. Egg

B. Chalaza

C. Micropylar

D. Filiform apparatus

Answer: D



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16. How many chromosomes do drones of honeybee possess?

A. 12

B. 16

C. 24

D. 32

Answer: B



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17. A typical angiospermic anther possesses

- A. 4 lobes, 2 sporangia
- B. 4 lobes, 4 sporangia
- C. 2 lobes, 2 sporangia
- D. 2 lobes, 4 sporangia

Answer: D



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18. Which of the following statements is correct about a cistron?

A. It is the non-coding DNA segment.

B. It contains repetitive DNA sequences.

C. It is a segment of DNA coding for a polypeptide.

D. It is a segment of DNA that codes for a mono-peptide.

Answer: C

19. Which part of the flower do the tassels of the corn-cob represent?

A. Petals

B. Stigma

C. Style

D. Both style and stigma

Answer: D

20. The transcriptionally active region of chromatin in a nucleus is:

A. intron

B. exon

C. heterochromatin

D. all of these

Answer: B



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21. At which stage of cell division does segregation of an independent pair of chromosomes occurs?

- A. Anaphase-I of Meiosis-I
- B. Prophase – I of Meiosis -I
- C. Anaphase-II of Meiosis-II
- D. Prophase-II of Meiosis-II

Answer: A



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22. Moss plants produce very large number of male gametes. These gametes are called

A. Heterogametes

B. Antherozoids

C. Isogametes

D. Egg

Answer: B



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23. A pea plant homozygous for axial flowers and constricted pods (AAii) is crossed with the pea plant homozygous for terminal flowers having inflated pods (aall). The genotype of the parents would be

A. Aaⁱⁱ x aaⁱⁱ

B. aa^{li} x Aa^{li}

C. AAⁱⁱ x aa^{ll}

D. AA^{ll} x aaⁱⁱ

Answer: C



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24. What type of sex-determination mechanisms the following cross show? Female ZW and Male ZZ

A. Male heterogamety

B. Male homogamety

C. Female homogamety

D. Female heterogamety

Answer: D



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25. Sporopollenin is found in

A. Integuments of ovule

B. Intine

C. Exine

D. Anther

Answer: C



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26. At which ends do 'capping' and 'tailing' of mRNA occur respectively?

A. 5' and 3'

B. 5' and 5'

C. 3' and 3'

D. 3' and 5'

Answer: A



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27. Consider the template strand given below:

----ATGCATGCATA C-----

Write the sequence of RNA that will be transcribed from the above transcription unit along with its polarity,

A. 3'-UACGUACGUAUG-5'

B. 5'-UACGUACGUAUG-3'

C. 5'-TACGTACGTATG-3'

D. 3'-TACGTACGTATG-5'

Answer: B



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28. Sexual reproduction in flowering plants was discovered by

A. Camerarius

B. Nawaschin

C. Strasburger

D. Maheshwari

Answer: C



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29. Marchantia is a:

- A. Monoecious plant
- B. Homothallic plant
- C. Dioecious plant
- D. Bisexual plant

Answer: C



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30. The bacterium *Streptococcus* produces the enzyme

A. Streptokinase

B. Statin

C. Lipase

D. Chitin

Answer: A



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31. Which of the following is a better mode of reproduction?

A. Sexual

B. Asexual

C. Both sexual and asexual

D. Parthenocarpy

Answer: A



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32. Tendrils of Cucurbita and thorns of Bougainvillea are

- A. Analogous structures
- B. Homologous structures
- C. Vestigial organs
- D. Connecting links

Answer: B



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33. Who proposed the concept of Central Dogma?

A. Meselson and Stahl

B. Frederich Meischer

C. Watson and Crick

D. Francis Crick

Answer: D



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34. Which of the following is the terminal method to prevent pregnancy in humans?

A. Condoms

B. Saheli pills

C. Tubectomy

D. Cut

Answer: C



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35. Transcription of InRNA is catalysed by

A. DNA polymerase

B. RNA polymerase

C. DNA ligase

D. Gyrase

Answer: B



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36. The phase that all organisms have to pass through before they can reproduce sexually is

- A. Juvenile phase
- B. Senescent phase
- C. Reproductive phase
- D. Menopausal phase

Answer: A



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37. Cucurbits are categorized as

A. Dioecious

B. Monoecious

C. Hermaphrodites

D. Parthenogenetic

Answer: B



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38. Which embryonic stage gets implanted in the uterine wall of a human female?

A. Blastocyst

B. Morula

C. Blastomere

D. Zygote

Answer: A



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39. Which of the following is a post-fertilisation event in flowering plants?

A. Transfer of pollen grains

B. Embryo development

C. Formation of flower

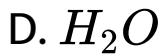
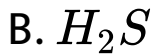
D. Formation of pollen grains

Answer: B



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40. Which of the following gases is not included in biogas?



Answer: D



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41. Fertilization is the fusion of male and female gametes.

Reason : Fertilization is followed by division of zygote multiple times to form the blastocyst.

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 : Pollen grains are well preserved as fossils.

Reason : Exine of the pollen grain contains sporopollenin.

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 : Pills contain a combination of estrogen and progesterone.

Reason : Pills are not safe to take.

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: C



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44. Assertion : Meiosis results in formation of two daughter cells,

Reason : Both the daughter cells are exactly same.

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: D



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45. Assertion : If dsDNA has 28% of cytosine, the amount of guanine will also be 28%.

Reason : According to Chargaff's rule, amount of guanine is always equal to amount of cytosine.

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.

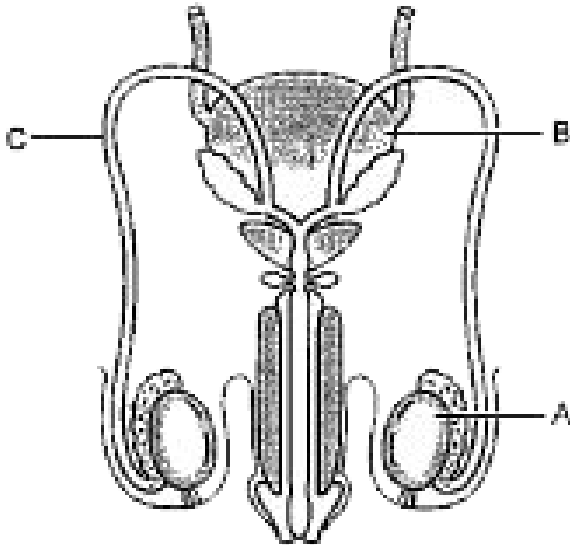
D. Both assertion and reason are false.

Answer: A



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46. Study the diagram given below and answer the questions that follow.



Name the accessory gland 'B'.

A. Seminal vesicle

B. Vas deferens

C. Epididymis

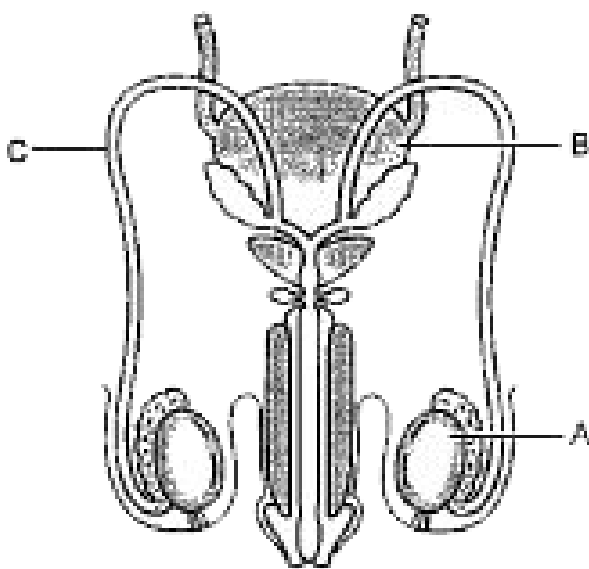
D. Testis

Answer: A



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47. Study the diagram given below and answer the questions that follow.



Name the organ 'C'.

A. Seminal vesicle

B. Vas deferens

C. Epididymis

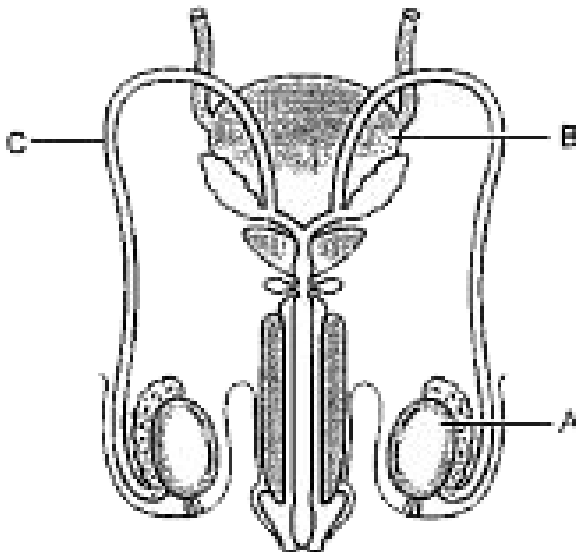
D. Testis

Answer: B



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48. Study the diagram given below and answer the questions that follow.



Which of the following hormone regulates Sertoli cells?

A. GH

B. Oxytocin

C. LH

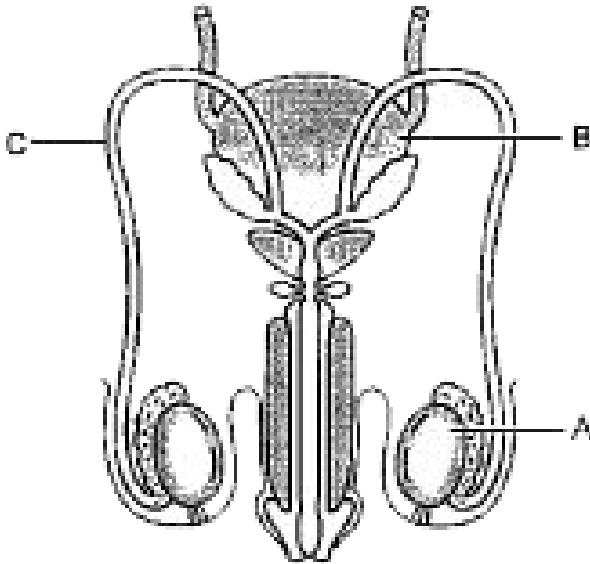
D. FSH

Answer: D



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49. Study the diagram given below and answer the questions that follow.



Sertoli cells are present

A. outside seminiferous tubules

B. in epididymis

C. in the lining of seminiferous tubules

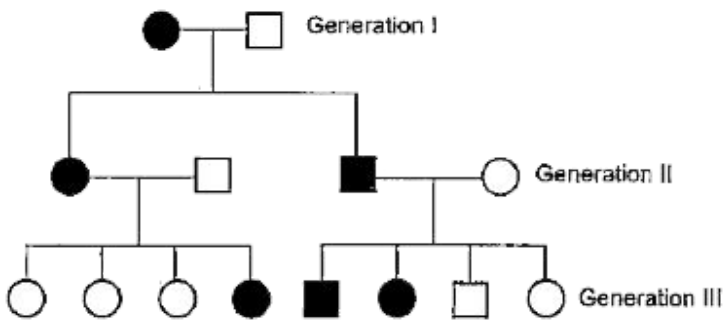
D. in the lining of epididymis

Answer: C



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50. Study the pedigree analysis given below and answer the questions that follow:



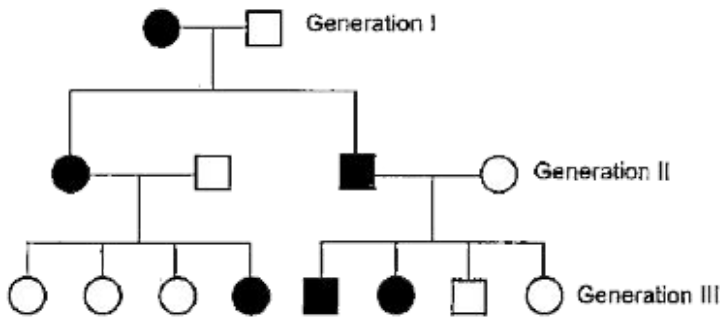
The type of inheritance depicted here is:

- A. Sex-linked dominant
- B. Sex-linked recessive
- C. Autosomal dominant
- D. Autosomal recessive

Answer: B

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51. Study the pedigree analysis given below and answer the questions that follow:



The possible genotype of parents is

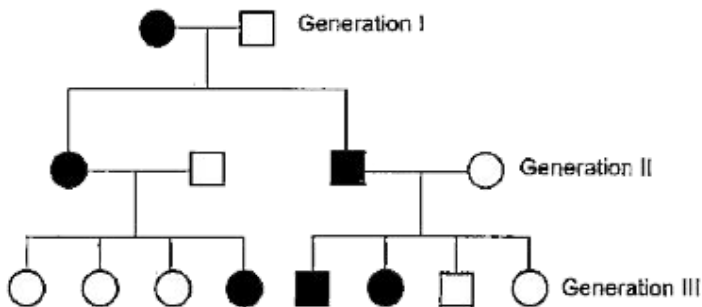
- A. female - $X^d X^d$ and male - $X^d Y$
- B. female - $X^d X$ and male - $X^d Y$
- C. female - $X^d X^d$ and male - XY
- D. female - XX and male - $X^d Y$

Answer: A



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52. Study the pedigree analysis given below and answer the questions that follow:



Which of the following disease shows this type of inheritance?

A. Down's syndrome

B. Thalassemia

C. Sickle-cell anaemia

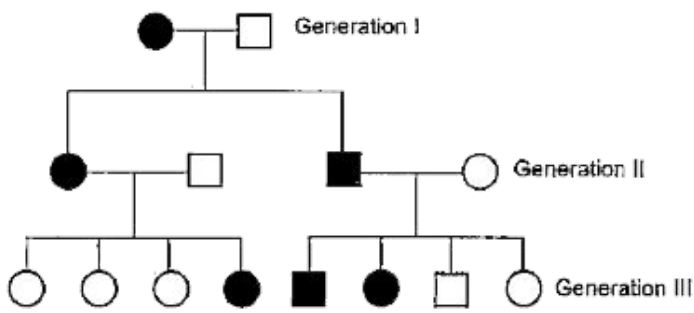
D. Hemophilia

Answer: D



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53. Study the pedigree analysis given below and answer the questions that follow:



A. Sickle-cell anaemia is a result of mutation.

B. frameshift

C. point

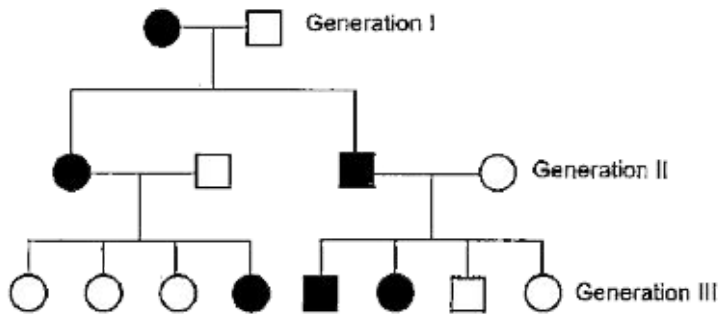
D. base

Answer: C



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54. Study the pedigree analysis given below and answer the questions that follow:



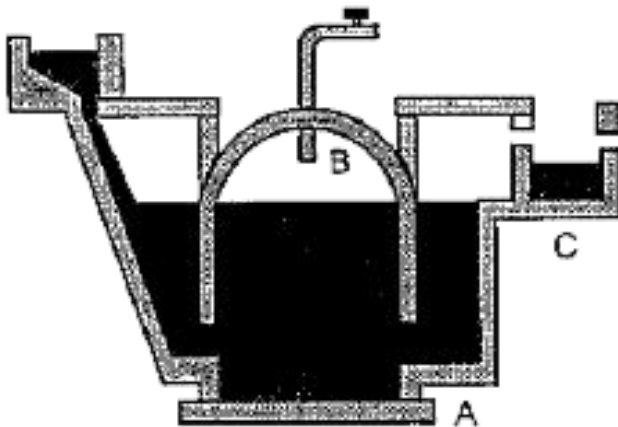
A son receives X-chromosome from,

- A. The mother
- B. The father
- C. Both mother and father
- D. Either mother or father.

Answer: A

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55. Study the diagram of biogas plant given below and answer the questions that follow.



The major constituents of biogas are:

A. CH_4 , CO_2

B. C_2H_6 , O_2

C. CH_4 , O_2

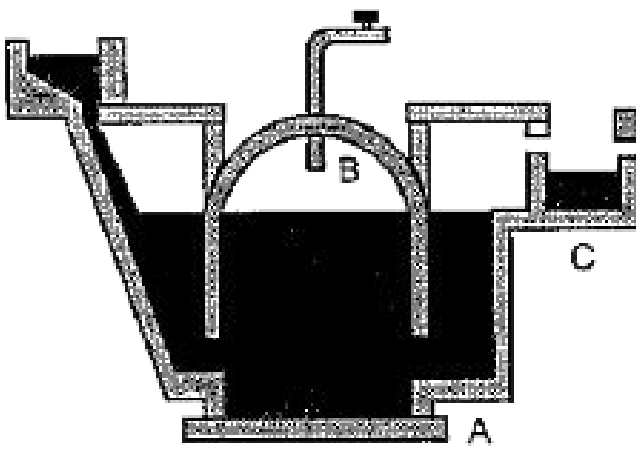
D. C_2H_6 , CO_2

Answer: A



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56. Study the diagram of biogas plant given below and answer the questions that follow.

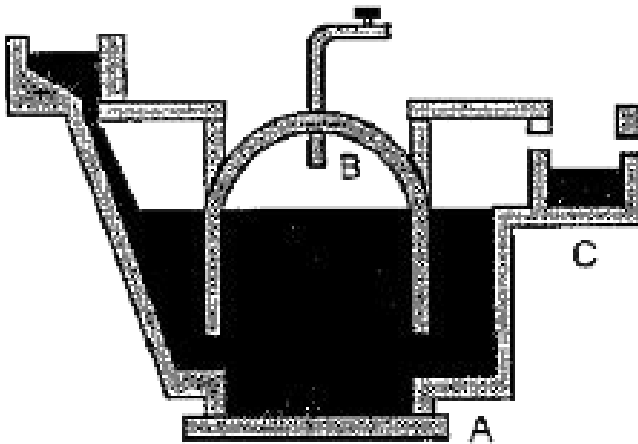


The component labeled as 'A' is

- A. Gas tank
- B. Digester
- C. Outlet
- D. Inlet

Answer: B

57. Study the diagram of biogas plant given below and answer the questions that follow.



The biogas plant is constructed

- A. Under the ground
- B. Above the ground

C. On top of a building

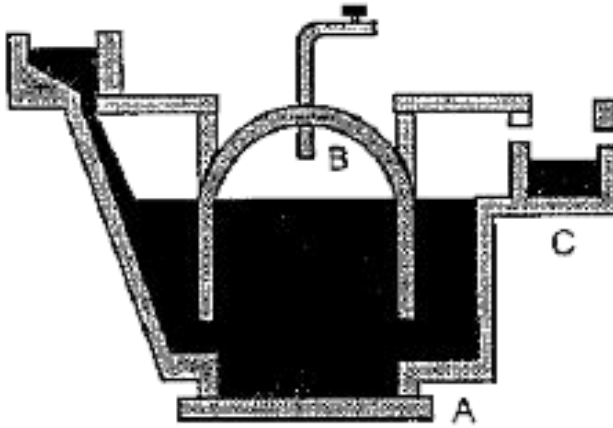
D. Near a water source

Answer: A



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58. Study the diagram of biogas plant given below and answer the questions that follow.



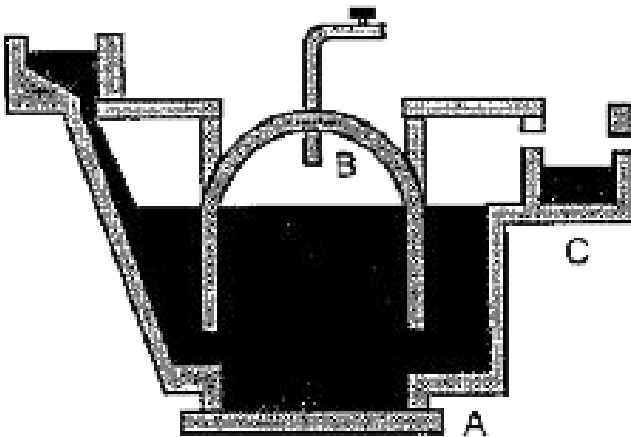
The spent slurry is

- A. used as fuel
- B. used as fertilizer
- C. is a waste
- D. is reused to produce biogas

Answer: B



59. Study the diagram of biogas plant given below and answer the questions that follow.



The component labeled as 'B' is

A. Gas tank

B. Digester

C. Outlet

D. Inlet

Answer: A



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60. Read the passage given below and answer the questions that follow.

A couple cannot decide whether to have children or not since many members in the husband's family have been suffering from a

debilitating genetic condition. They consult a doctor and he refers them to a geneticist. The geneticist asks them about their entire family history up to 5 generations and gives them the advice.

The method that the geneticist used was

- A. Blood tests
- B. Pedigree analysis
- C. Test crosses
- D. Chromosomal tests

Answer: B



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61. Read the passage given below and answer the questions that follow.

A couple cannot decide whether to have children or not since many members in the husband's family have been suffering from a debilitating genetic condition. They consult a doctor and he refers them to a geneticist. The geneticist asks them about their entire family history up to 5 generations and gives them the advice.

Which of the following symbols represents marriage?

A. draw two circles joined by two lines

B. draw two squares joined by two lines

C. draw a circle and a square joined by a
line

D. draw a circle and square joined by two
lines

Answer: C



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62. Read the passage given below and answer the questions that follow.

A couple cannot decide whether to have children or not since many members in the husband's family have been suffering from a debilitating genetic condition. They consult a doctor and he refers them to a geneticist. The geneticist asks them about their entire family history up to 5 generations and gives them the advice.

The advantage of this method is

- A. helps in genetic counselling
- B. shows origin of trait in family
- C. predicts harmful effects of marriage between close relatives
- D. All of these

Answer: D



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63. Read the passage given below and answer the questions that follow.

A couple cannot decide whether to have children or not since many members in the husband's family have been suffering from a debilitating genetic condition. They consult a doctor and he refers them to a geneticist. The geneticist asks them about their entire family history up to 5 generations and gives them the advice.

The characters studied in this type of test is equivalent to

A. Quantitative trait

B. Mendelian trait

C. Polygenic trait

D. Maternal trait

Answer: B



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A pair of contrasting characters is called

- A. Phenotype
- B. Genotype
- C. Homozygosity

D. alleles

Answer: D

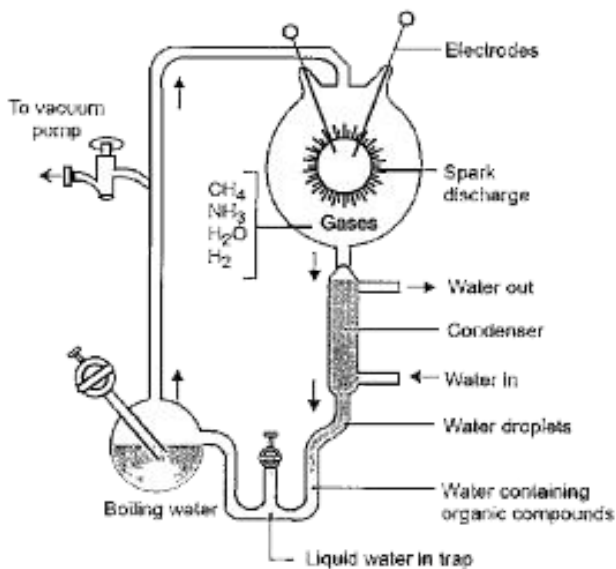


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65. Read the following passage and answer the questions that follow.

Urey & Miller tried to create in the laboratory the similar conditions which might have existed in early primitive atmosphere. A mixture of water vapours, methane, ammonia

& hydrogen is exposed to electric discharge in a closed chamber, this fluid thus formed is allowed to stand for several weeks as a result, amino acids e.g. glycerine & alanine are formed from fluid. They suggested that electric discharge produced during lightning in primitive atmosphere of earth might have resulted in formation of organic



Who were the two scientists that conducted an experiment to synthesise organic molecule abiotically?

A. Urey

B. Miller

C. Both (a) and (b)

D. Stanley

Answer: C

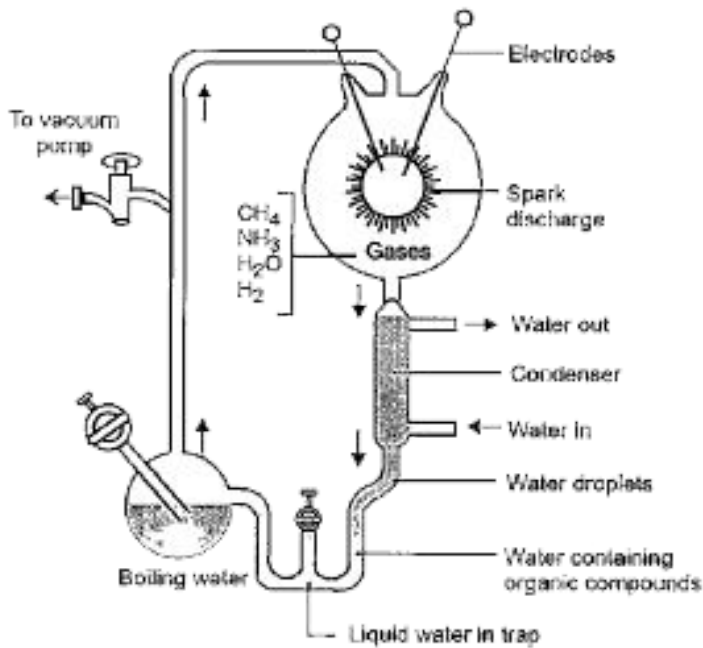


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The conclusion of this experiment by scientists was

- A. Life originated through spontaneous generation
- B. Life came from pre-existing life

C. Life came from pre-existing organic molecules

D. Life was created by God

Answer: C

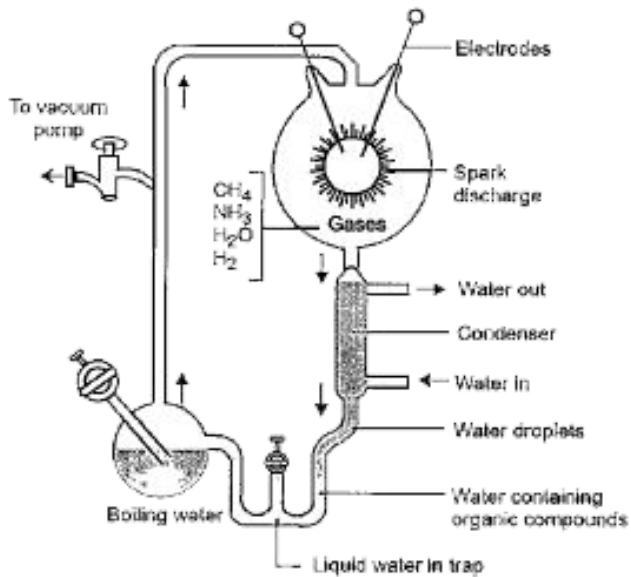


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The concept of this experiment is based on

A. Interaction of water, air and clay under intense heat

B. Effect of solar radiation on chemicals

C. Possible origin of life by combination of chemicals under suitable environmental conditions

D. Crystallization of chemicals

Answer: C

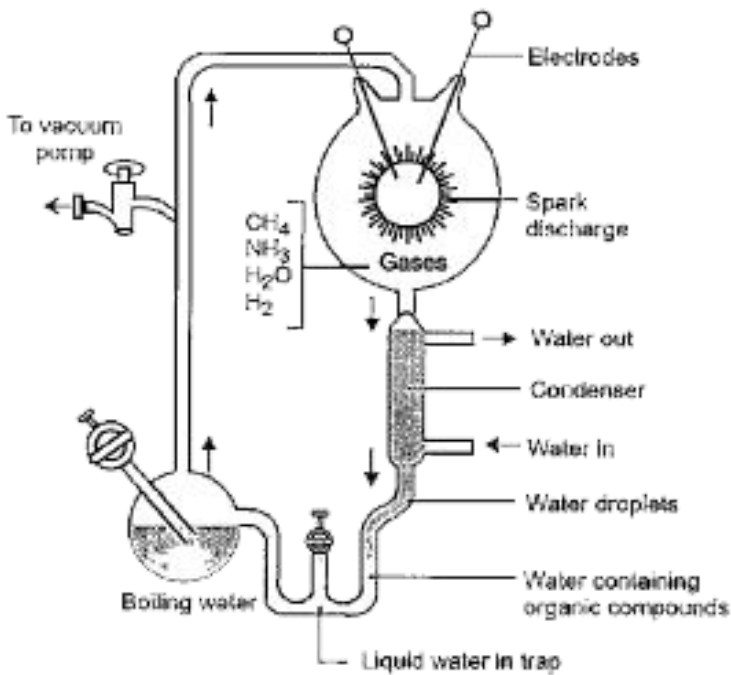


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This experiment created primitive earth conditions. These conditions include

A. Low temperature, volcanic storms,
atmosphere rich in oxygen

B. Low temperature, volcanic storms,
reducing atmosphere

C. High temperature, volcanic storms, non-
reducing atmosphere

D. High temperature, volcanic storms,
reducing atmosphere

Answer: D

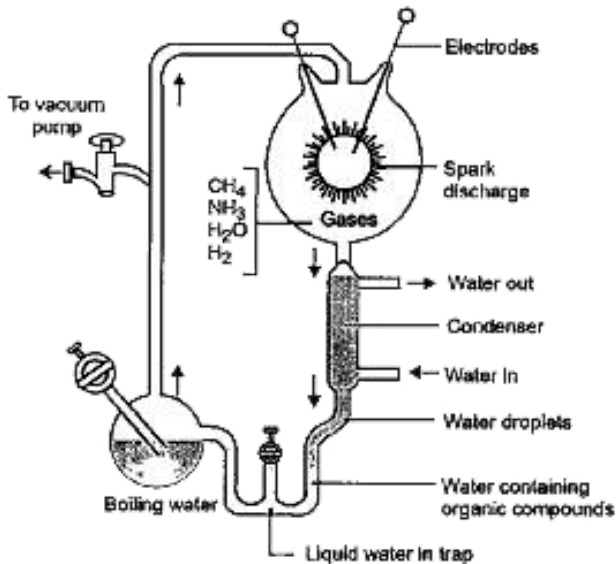


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in primitive atmosphere of earth might have resulted in formation of organic



Miller in his experiment, synthesized simple amino acid from

A. methane, ammonia, oxygen, nitrogen

B. hydrogen, methane, ammonia, water

C. ammonia, methane, carbon dioxide,
oxygen

D. hydrogen, water, oxygen, helium

Answer: B



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