



INDIAN SCHOOL AL WADI AL KABIR
ASSESSMENT I (2021-2022)
BIOLOGY (044)

CLASS: XII

DATE: 26.09.2021

General Instructions:

1. The Question Paper contains three sections.

2. Section A has 13 questions.

3. Section B has 13 questions.

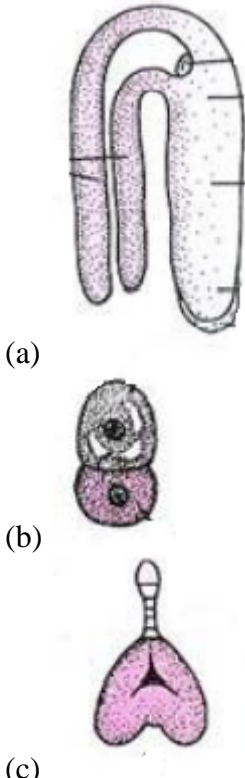
4. Section C has 9 questions.

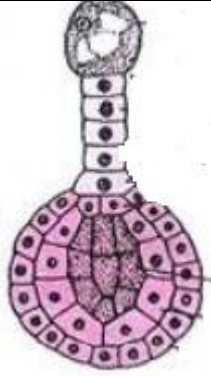
5. All questions are compulsory and carry equal marks.

Max. Marks: 35

Time: 90 Minutes

SECTION A		
	Section – A consists of 13 questions.	
Sl. No.		MARKS
1	Which of the following bonds are broken during DNA replication? (a) Hydrogen bonds between bases (b) Phosphodiester bonds (c) Covalent bonds between bases (d) Ionic bonds between bases and phosphate groups	
2	A piece of DNA was analyzed and 15% of its nucleotides were adenine. What percentage would be uracil? (a) 15% (b) 0% (c) 70% (d) 35%	
3	In a fertilized embryo sac, the haploid, diploid and triploid structures are- (a) Synergid, zygote and primary endosperm nucleus (b) Synergid, antipodal and polar nuclei (c) Antipodal, synergid and primary endosperm nucleus	

	(d) Synergid, polar nuclei and zygote	
4	Removal of gonads is not a method of contraception because (a) It stops gametogenesis forever. (b) It alters the sex hormonal balance in the body. (c) It makes the person infertile (d) All the above	
5	Pleiotropy can be defined as: - (a) When one gene control one trait (b) When one gene exhibit multiple traits (c) When multiple genes control one trait (d) When multiple genes control multiple trait	
6	What will be the percentage of pea plants that would be homozygous recessive in the F2 generation, when tall F1 heterozygous pea plants are selfed: - (a) 25% (b) 50% (c) 75% (d) 100%	
7	Which among the following represents pro-embryo stage in dicot embryo development?  <p>(a)</p> <p>(b)</p> <p>(c)</p>	

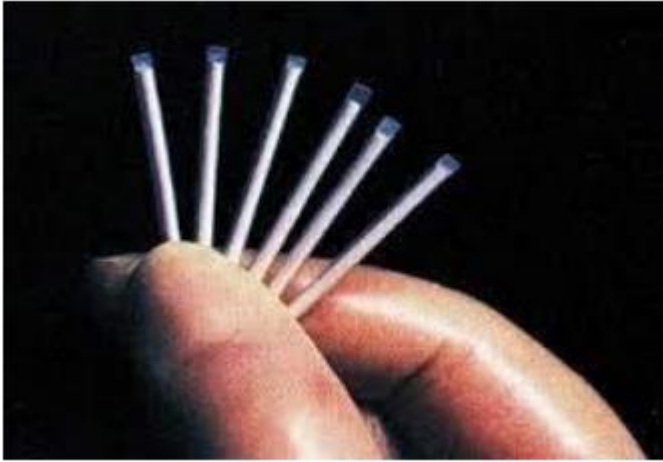


(d)

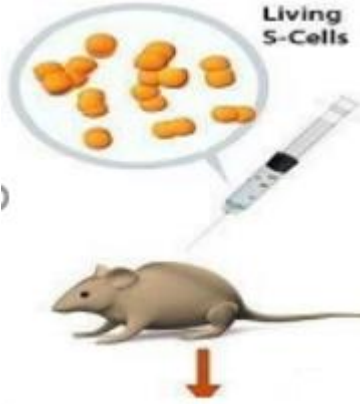
8	<p>In a flower, if the megaspore mother cell forms megaspores without undergoing meiosis and if one of the megaspores develops into an embryo sac, its nuclei would be</p> <p>(a) Haploid (b) Diploid (c) A few haploid and a few diploid (d) With varying ploidy</p>	
9	<p>Autogamy can occur in a chasmogamous flower if</p> <p>(a) pollen matures before maturity of ovule (b) ovule matures before maturity of pollen (c) both pollen and ovules mature simultaneously (d) both anther and stigma are of different lengths.</p>	
10	<p>Which of the following is the most likely explanation for a high rate of crossing-over between two genes?</p> <p>(a) The two genes are far apart on the same chromosome. (b) The two genes are both located near the centromere. (c) The two genes are sex-linked. (d) The two genes are on different chromosomes</p>	
11	<p>Identify the incorrect statement regarding Hershey & Chase experiment</p> <p>(a) Experiment proves that DNA is the genetic material. (b) They used bacteriophage (c) Protein labelled with P^{32} & DNA with S^{35} (d) Virus was the experimental material.</p>	
12	<p>Identify the incorrect statement</p> <p>(a) Purines are Adenine & Guanine (b) Pyrimidines are Cytosine, Thymine, Adenine (c) Adenine pairs with thymine by 2 Hydrogen bonds (d) Guanine pairs with cytosine by 3 hydrogen bonds.</p>	
13	<p>Perisperm is-</p> <p>(a) Degenerated secondary nucleus (b) Remnant of nucellus (b) Peripheral part of endosperm (d) Degenerated synergid</p>	
SECTION B		
Section - B consists of 13 questions		

14	<p>Assertion: Exine of pollen grain is comprised of sporopollenin which is resistant to high temperature, strong acid or alkali.</p> <p>Reason: Sporopollenin is absent in the region of germ pore.</p> <p>(a) Both assertion and reason are true, and reason is the correct explanation of assertion.</p> <p>(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.</p> <p>(c) Assertion is true but reason is false.</p> <p>(d) Both assertion and reason are false</p>	
15	<p>Assertion: ARTs are available for childless couples to have a baby but all cannot afford.</p> <p>Reason: These are very specialized, costly techniques performed by specialists and these facilities are available in some cities only.</p> <p>(a) Both assertion and reason are true, and reason is the correct explanation of assertion.</p> <p>(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.</p> <p>(c) Assertion is true but reason is false.</p> <p>(d) Both assertion and reason are false</p>	
16	<p>Assertion: In human beings, 23 pairs of chromosomes are present in diploid cells.</p> <p>Reason: 22 pairs of chromosomes are equal in male and female but a pair sex chromosome is different in them.</p> <p>(a) Both assertion and reason are true, and reason is the correct explanation of assertion.</p> <p>(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.</p> <p>(c) Assertion is true but reason is false.</p> <p>(d) Both assertion and reason are false</p>	
17	<p>How many meiotic divisions are needed for forming 100 grains of wheat?</p> <p>(a) 100</p> <p>(b) 25</p> <p>(c) 50</p> <p>(d) 125</p>	
18	<p>In the given flow chart of spermatogenesis in humans, identify the structures which are haploid in nature</p>	

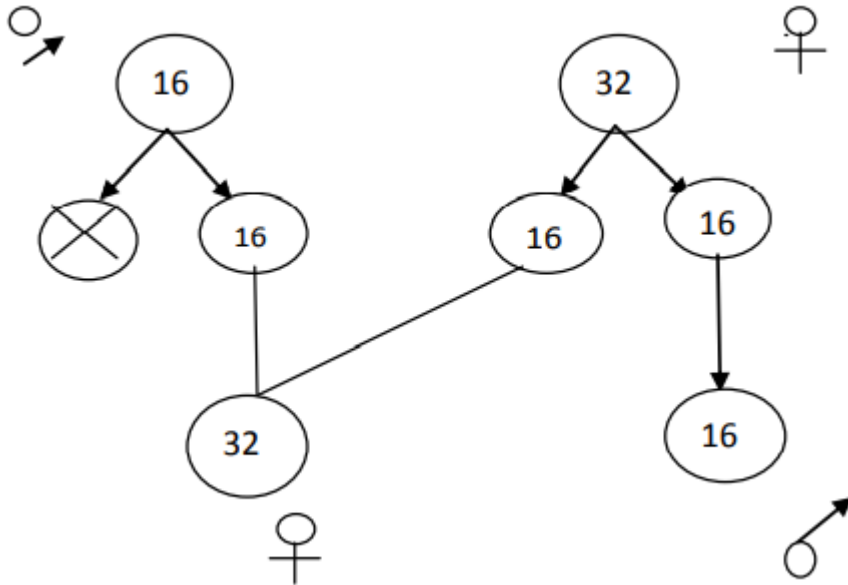
	<p style="text-align: center;"> Germinal epithelium 1 differentiation ↓ Mitosis Spermatogonia 2 ↓ Mitosis Primary spermato cyte 3 ↓ 1st Meiotic division Secondary spermatocyte 4 ↓ 2nd meiotic division Spermiogenesis Spermatid 5 ↓ Spermiation Spermatozoa 6 </p> <p> (a) 4, 5, 6 (b) 3, 4, 5, 6 (c) 5, 6 (d) Only 6 </p>	
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19	<p>Identify this contraceptive used by females</p>  <p> (a) Injectables (b) Implants (c) Emergency contraceptive (d) Oral contraceptive </p>	
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20	<p>A form of vitamin D-resistant rickets, known as hypophosphatemia, is inherited as an X-linked dominant trait. If a male with hypophosphatemia marries a normal female, which of the following predictions concerning their potential progeny would be true?</p> <p> (a) All of their sons would inherit the disease (b) All of their daughters would inherit the disease (c) About 50% of their sons would inherit the disease </p>	
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	(d) About 50% of their daughters would inherit the disease	
21	(A) represents the dominant allele and (a) represents the recessive allele of a pair. If, in 1000 offspring, 500 are aa and 500 are of some other genotype, which of the following are most probably the genotypes of the parents? (a) Aa and Aa (b) Aa and aa (c) AA and Aa (d) AA and aa	
22	Foot and mouth disease viruses (FMDV) are the pathogens that cause foot and mouth disease in livestock. An analysis of the genetic material of the 'O' strain of FMDV showed that it contains 1996 adenine bases, 2131 guanine bases, 1642 uracil bases and 2365 cytosine bases. Which one of the following describes the genetic material of the virus? (a) Single-stranded DNA (b) Single-stranded RNA (c) Double-stranded DNA (d) Double-stranded RNA	
23	A hemophilic son born to normal parents. Give the genotype of parents: - (a) Mother XX father X ^h Y (b) Mother X ^h X, father XY (c) Mother XX, father XY (d) Mother X ^h X, father X ^h Y	
24	 <p>Living S-Cells</p> <p>What will be the effect of this experiment on rat? (a) Rat will survive (b) S strain will be transformed into R strain (c) Rat will be infected (d) R strain can be isolated from dead rat</p>	

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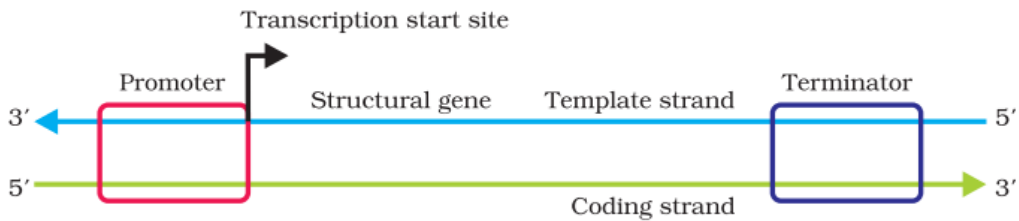


Identify the process represented by the given diagram

- (a) Haplodiploidy in honey bees
- (b) Sex determination in honey bees
- (c) Sexual reproduction and parthenogenesis in honey bees
- (d) All of these

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Identify the correct statement regarding the given diagram



- (a) The promoter site is read as 5' or upstream in relation with coding strand
- (b) The newly formed RNA will be similar to template strand
- (c) Structural gene is polycistronic in eukaryotes
- (d) RNA polymerase activity is 3' to 5'

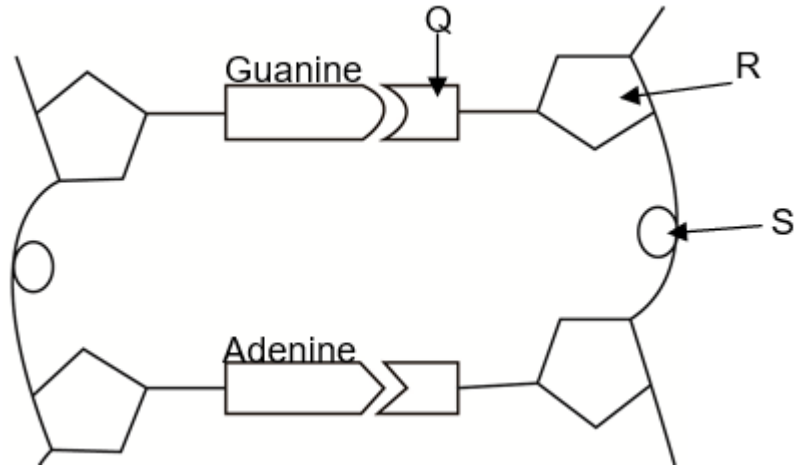
SECTION C

Section-C consists of one case followed by 5 questions linked to this case (Q.No.27 to 31). Besides this, 4 more questions are there.

Case

Observe the flow chart that represents different events during menstrual cycle. Based on the observation, answer the questions

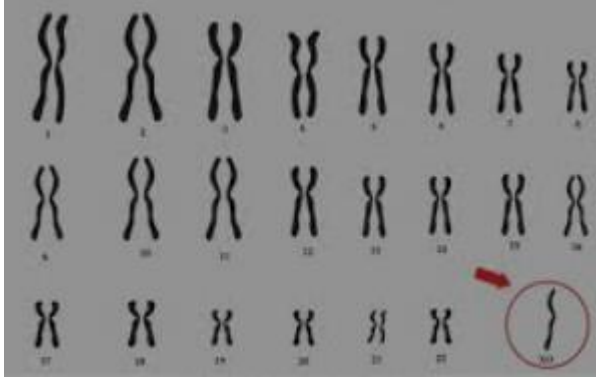
27	Identify the pituitary hormones represented in the flow chart (a) Estrogen and FSH (b) Estrogen and progesterone (c) LH and FSH (d) No pituitary hormones	
28	LH surge is observed during which phase? (a) Follicular phase (b) Luteal phase (c) Secretory phase (d) Ovulation phase	
29	Corpus luteum is (i) Responsible for progesterone secretion (ii) Formed in uterus during menstrual cycle (iii) Necessary for maintaining pregnancy (iv) The remnant of Graafian follicle Select the correct statements (a) All of these (b) (i), (ii), (iii) (c) (i), (iii), (iv) (d) (i), (iv)	
30	The above flow chart represents different events in (a) Ovary (b) Uterus (c) Both ovary and uterus (d) Follicular cells	
31	Which ovarian hormone/s occur in high concentration during follicular phase? (a) Progesterone (b) Estrogen (c) LH (d) FSH	
32	Refer the given diagram	



Which parts, **Q**, **R** or **S**, contain carbon?

- (a) Q, R & S
- (b) Q & S
- (c) Q & R
- (d) R & S

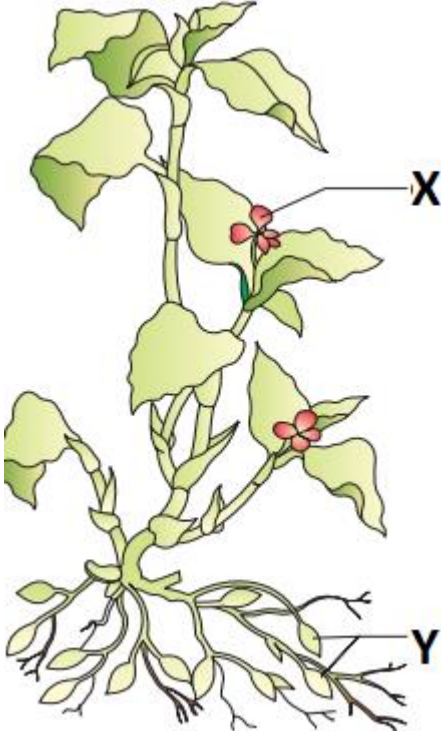
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Which genetic disorder is represented by the given karyotype?

- (a) Down's syndrome
- (b) Klinefelter's syndrome
- (c) Hemophilia
- (d) Turner's syndrome

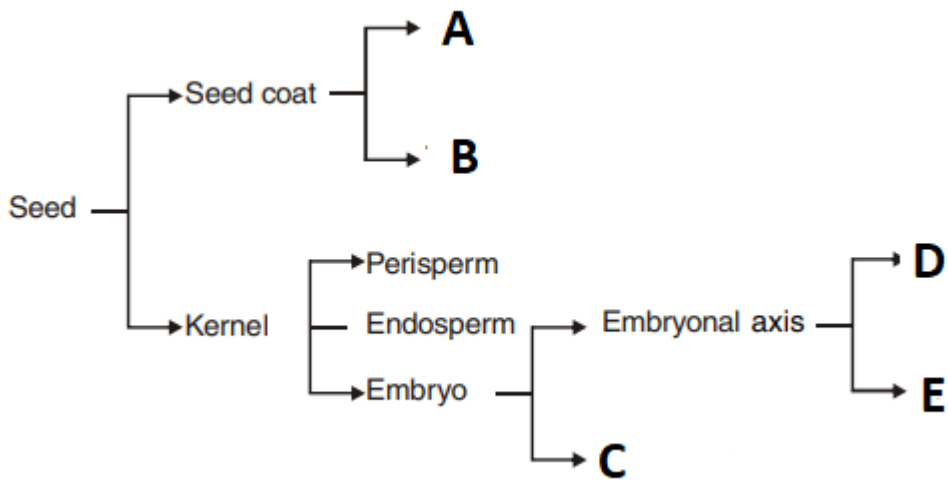
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Give the specialty of the given plant

- (a) Assured seed set, X – Chasmogamous flower, Y – Cleistogamous flowers
- (b) Assured seed set, X – Cleistogamous flower, Y – Chasmogamous flowers
- (c) Symbiotic nitrogen fixation, X – Chasmogamous flower, Y – Cleistogamous flowers
- (d) Symbiotic nitrogen fixation, X – Cleistogamous flower, Y – Chasmogamous flowers

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Observe the schematic representation showing the parts of dicot seed. Identify the correct option that represent the parts labelled as A, B, C, D and E.

- (a) Aleurone, scutellum, cotyledon, hypocotyl, epicotyl
- (b) Testa, tegmen, cotyledon, plumule, radicle
- (c) Testa, tegmen, scutellum, hypocotyl, epicotyl

	(d) Testa, tegmen, scutellum, plumule, radicle	
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ANSWER KEY

Question number	Correct option	Question number	Correct option
1	(a)	19	(b)
2	(b)	20	(b)
3	(a)	21	(b)
4	(d)	22	(b)
5	(b)	23	(b)
6	(a)	24	(c)
7	(b)	25	(d)
8	(b)	26	(a)
9	(c)	27	(c)
10	(a)	28	(d)
11	(c)	29	(c)
12	(b)	30	(c)
13	(b)	31	(b)
14	(b)	32	(c)
15	(a)	33	(d)
16	(b)	34	(a)
17	(d)	35	(b)
18	(a)		

CHECKED BY : HOD – SCIENCE
