مـــدرسـة دلهـــي الخـاصـة ذ.م.م.
DELHI PRIVATE SCHOOL L.L.C.
Affiliated to C.B.S.E., DELHI
(Approved & Recognized By Ministry of Education - United Arab Emirates)
DPS SHARJAH

PB-T1/BIQP/1221/A **08-NOV-2021**

PREBOARD EXAMINATION (2021-22)
TERM I - SET A

Subject: BIOLOGY **Max. Marks: 35**

Grade: XII **Time:90 Mts**

Name: **Section:** **Roll No:**

General Instructions:

- *This question paper consists of 7 printed pages.*
- *Answers to be bubbled in the OMR sheet provided.*
- *The Question Paper contains three sections.*
- *Section A has 24 questions. Attempt any 20 questions.*
- *Section B has 24 questions. Attempt any 20 questions.*
- *Section C has 12 questions. Attempt any 10 questions.*
- *All questions carry equal marks. There is no negative marking*

SECTION -A

I. Multiple Choice Questions:

1. Monosomy of sex chromosome in females

a. Turners syndrome **b.** Downs syndrome

c. Klinefelter's syndrome **d.** Myotonic dystrophy

2. A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by

a. insects **b.** water

c. wind **d.** Animals

3. In the embryos of a typical dicot and a grass, true homologous structures are

a. coleorhiza and coleoptile **b.** coleoptile and scutellum

c. cotyledons and scutellum **d.** hypocotyl and radicle

4. How many chromosomes do drones of honeybee possess?

a. 16 **b.** 32

c. 48 **d.** 8.

5. The meiocyte of rice has 24 chromosomes. How many chromosomes are present in its endosperm?

a. 48 **b.** 12

c. 36 **d.** 24

6 Name the hormones produced only during pregnancy in a human female.

a. relaxin **b.** thyroxin

c. cortisol **d.** Estrogen

7 Name the type of antibodies present in colostrum

a. Ig A **b.** Ig G

c. Ig M **d.** Ig E

8 The membranous cover of the ovum at ovulation is

a. corona radiata
b. Zona radiata
c. zona pellucida
d. Chorion

9 Which among the following has 23 chromosomes

a. Spermatogonia
b. Zygote
c. Secondary oocyte
d. Oogonia

10 Intensely lactating mothers do not generally conceive due to the

a. suppression of gonadotropins
b. hyper secretion of gonadotropins
c. suppression of gametic transport
d. suppression of fertilisation

11 The number of gametes involved in the formation of 100 pea seeds are

a. 100
b. 200
c. 300
d. 50

12 A short segment of DNA has 80 thymine nucleotides and 80 guanine nucleotide. The total number of nucleotides in this segment will be

a. 80
b. 160
c. 320
c. 240

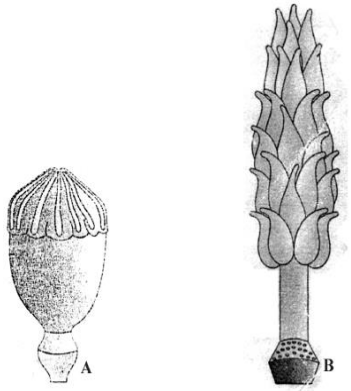
13 Which of the following STDs are caused by bacteria?

a. AIDS and Genital Herpes
b. Syphilis and gonorrhoea
c. Trichomoniasis and scabies
d. All of these

14 The coconut water from tender coconut is

a. cellular endosperm.
b. free nuclear endosperm.
c. both cellular and nuclear endosperm.
d. free nuclear embryo

15



Identify the type of gynoecium Shown above

a. a. Apocarpous b.Syncarpous
b. a.Syncarpous.b. Apocarpous
c. a. Epigynous b.Hypogynous
d. a.Hypogynous b. Perigynous

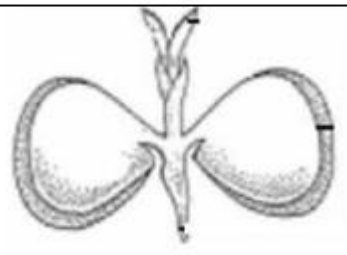
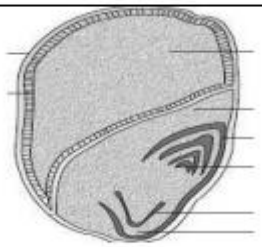
16 If the sequence of nitrogen bases of the coding strand of DNA in a transcription unit is: 5' – ATGAATG – 3', the sequence of bases in its RNA transcript would be

a. 5' – AUGAAUG – 3'
b. 5' – UACUU AC – 3'
c. 5' – CAUUCAU – 3'
d. 5' – GUAAGUA – 3

17 In some viruses, DNA is synthesized by using RNA as a template. Such a DNA is called

a. A-DNA
b. B-DNA
c. cDNA
d. rDNA

18 Which of the following statements are true related to Seed X and Y?

	
SEED X	**SEED Y**

(i) Seed X is dicot and endospermic or albuminous.
(ii) Seed X is dicot and non-endospermic or non-albuminous.
(iii) Seed Y is monocot and endospermic or albuminous.
(iv) Seed Y is monocot and non-endospermic or non-albuminous.
Choose the correct option with the respect to the nature of the seed

a. (i), (iii) b. (ii), (iii)
c. (i), (iv) d. (ii), (iv

19 Removal of introns and joining the exons in a defined order in a transcription unit is called

a. tailing b. transformation
c. capping d. splicing

20 Emergency contraceptives are effective if used within:

a. 72 hrs of coitus b. 72 hrs of ovulation
c. 72 hrs of menstruation d. 72 hrs of implantation

21 An organism with two copies of the same allele is

a. Homozygous for that trait b. Homologous for the allele
c. Heterozygous for the trai d. Heterozygous for the allele

22 A female undergoing IVF treatment has blocked fallopian tubes. The technique by which the embryo with more than 8 blastomeres will be transferred into the female for further development is

a. ZIFT b. GIFT
c. IUT d. AI

23 Aneuploidy is:

a. 2n + 1 b. n + 1
c. n – 1 d. 3n

24 Short stretches of DNA used to identify complementary sequence in a sample are called

a. probes b. markers
c. VNTRs d. primers

SECTION - B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

Question No. 25 to 28 consist of two statements – Assertion (A) and Reason (R).
Answer these questions selecting the appropriate option given below:
A. Both A and R are true and R is the correct explanation of A
B. Both A and R are true and R is not the correct explanation of A
C. A is true but R is false
D. A is False but R is true

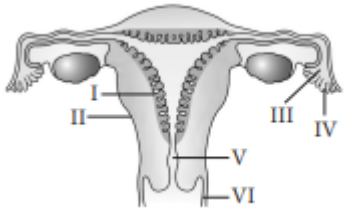
25 Assertion: Sickle-cell hemoglobin has a valine in place of glutamic acid at position 6 in the β polypeptide chain.
Reason: Sickle-cell anemia is expressed only in homozygous recessive state

26 Assertion: Only the sense strand of DNA is copied into mRNA.
Reason: The antisense strand plays a role in replication

27 Assertion: Cross pollination results in healthy and stronger offspring.
Reason: Due to phenomenon of hybrid vigor

28 Assertion: Endosperm is a nutritive tissue and it is triploid.
Reason: Endosperm is formed by fusion of secondary nucleus to second male gamete. It is used by developing embryo.

29 The figure given below depicts a diagrammatic sectional view of the human female reproductive system.



Which set of three parts out of I-VI have been correctly identified? I II III V VI IV

a. (II) Endometrium, (III) Infundibulum, (IV) Fimbriae

b. (III) Infundibulum, (IV) Fimbriae, (V) Cervix

c. (IV) Oviducal funnel, (V) Uterus, (VI) Cervix

d. (I) Perimetrium, (II) Myometrium, (III) Fallopian tube (2011)

30 How many functional sperms and how many ova will be formed by a primary spermatocyte and a primary oocyte, respectively?

a. One, One
b. One, Four
c. Four, One
d. Four, Four

31 If a DNA contains 1000 base pairs, what would be its length?

a. 3400 Å
b. 34000 Å
c. 6800 Å
d. 1000 Å

32 There is no cell division involved in

a. spermatogenesis
b. oogenesis
c. embryogenesis
d. spermiogenesis

33 The first movements of the foetus and appearance of hair on the head are observed during the _____ month of pregnancy.

a. Fifth
b. Foruth
c. Third
d. Sixth

34 Target cells of luteinizing hormone in human males a

a. Leydig cells
b. Sertoli cells
c. Follicular cells
d. Germ cells

35 Hershey and Chase experiment proving DNA as the genetic material was based on the principle

a. Transduction
b. transformation
c. transcription
d. translation

36 Read the statements given below and identify the incorrect statement.

a. The human genome contains 3164.7 million nucleotide bases.
b. The average gene consists of 30,000 bp
c. The total number of genes is estimated at 30,000.
d. Chromosome Y has 231 genes

37 The fruits of parasitic species which has many seeds in it

a. Orobranchae
b. Ficus
c. Lupinus
d. Citrus

38 Which part of flower forms Tassels of corn cob

a. Style
b. ovary
c. thalamus
d. stamen

39 The outermost thin membranous part of uterine wall is called _____ .

a. perimetrium
b. myometrium
c. endometrium
d. endothecium

40 Urethral meatus refers to the

a. urinogenital duct
b. opening of vas deferens into urethra
c. external opening of the urinogenital duct
d. muscles surrounding the urinogenital duct

41 In transcription in eukaryotes, heterogenous nuclear RNA (hnRNA) is transcribed by

a. RNA polymerase I
b. RNA polymerase II
c. RNA polymerase III
d. All of the above

42 A flower of brinjal plant following the process of sexual reproduction produces 360 viable seeds. How many microspore mother cells must have undergone reduction division prior to dehiscence of another in the above case

a. 90
b. 360
c. 180
d. 270

43 The structural genes of lac operon transcribe mRNA which is

a. polycistronic
b. replicative
c. monokaryotic
d. monocistronic

44 A true breeding pea plant homozygous for axial violet flowers is crossed with another pea plant with terminal white flowers (aavv).
What would be the genotype of F1

a. AAVV
b. AaVv
c. AAVv
d. AaVV

45 A single gene exhibits multiple phenotypic expression is called

a. Polygenic
b. pleiotropy
c. incomplete domianace
d. Multiple allelism

46 Name the stage in the cell cycle where DNA replication occur

a. synthetic phase
b. Leptotene
c. Mitotic phase
d. G1phase

47 If the base sequence of a codon in mRNA is 5'-AUG-3', the sequence of tRNA pairing with it must be

a. 5'-UAC-3'
b. 5'-CAU-3’
c. 5'-AUG-3'
d. 5'-GUA-3'

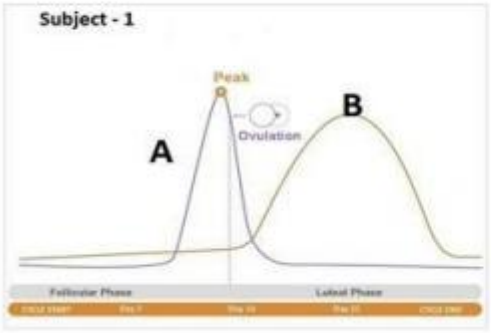
48 A DNA segment has a total of 2,000 nucleotides, out of which 520 are adenine containing nucleotides.
How many purine bases this DNA segment possesses?

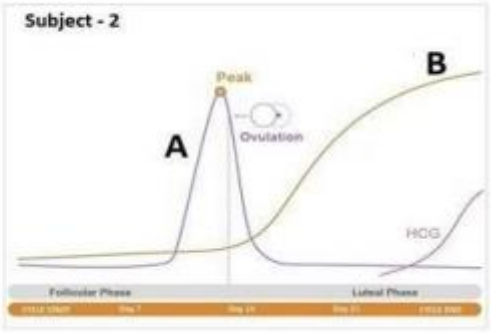
a. 1000
b. 1040
c. 960
d. 2000

SECTION C

Section-C consists of one case followed by 6 questions linked to this case (Q.No.49 to 54). Besides this, 6 more questions are given. Attempt any 10 questions in this section. The first attempted 10 questions would be evaluated.

To answer the questions, study the graphs below for Subject 1 and 2 showing different levels of certain hormones.





49 The peak observed in Subject 1 and 2 is due to
a. estrogen
b. progesterone
c. luteinizing hormone
d. follicle stimulating hormone

50 Subject 2 has higher level of hormone B, which is
a. estrogen
b. progesterone
c. luteinizing hormone
d. follicle stimulating hormone

51 If the peak of Hormone A does not appear in the study for Subject 1, which of the following statement is true
a. Peak of Hormone B will be observed at a higher point in the graph
b. Peak of Hormone B will be observed at a point lower than what is given in the graph
c. There will be no observed data for Hormone B
d. The graph for Hormone B will be a sharp rise followed by a plateau

52 Which structure in the ovary will remain functional in subject 2?
a. Corpus Luteum
b. Tertiary follicle
c. Graafian follicle
d. Primary follicle

53 For subject 2 it is observed that the peak for hormone B has reached the plateau stage. After approximately how much time will the curve for hormone B descend?
a. 28 days
b. 42 days
c. 180 days
d. 280 days

54 Which of the following statements is true about the subjects?
a. Subject 1 is pregnant
b. Subject 2 is pregnant
c. Both subject 1 and 2 are pregnant
d. Both subject 1 and 2 are not pregnant

55 A plant having the genotype AABbCC will produce _____ kinds of gametes

a. 5
b. 4
c. 2
d. 1

56 A man marries a woman and both do not show any apparent traits of inherited disease. Five sons and two daughters are born, and three of their sons suffer from a disease. However, none of the daughters is affected. The following mode of inheritance for the disease is

a. Sex-linked dominant
b. Sex-linked recessive
c. Autosomal dominant
d. None of the above

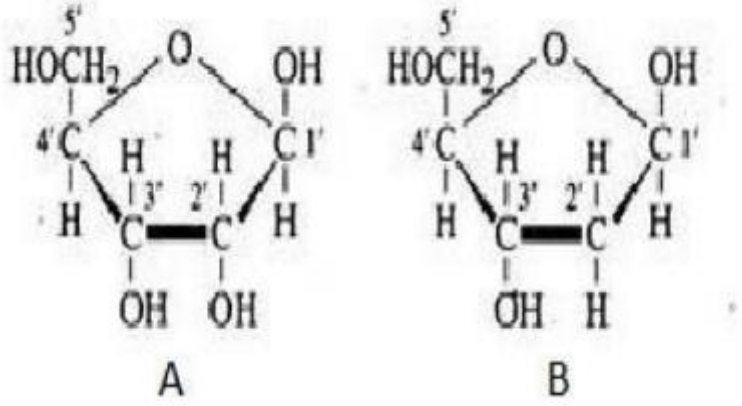
57 MTP is considered safe up to how many weeks of pregnancy?

a. 8
b. 6
c. 18
d. 12

58 Who amongst the following scientists had no contribution in the development of the double helix model for the structure of DNA?

a. Rosalind Franklin
b. Maurice Wilkins
c. Erwin Chargaff
d. Meselson and Stahl

59 Observe structures A and B given below. Which of the following statements are correct?



a. A is having 2'-OH group which makes it less reactive and structurally stable, whereas B is having 2'-H group which makes it more reactive and unstable.
b. A is having 2'-OH group which makes it more reactive and structurally unstable, whereas B is having 2'-H group which makes it less reactive and structurally stable.
c. A and B both have -OH groups which make it more reactive and structurally stable.
d. A and B both are having -OH groups which make it less reactive and structurally stable

60 A normal visioned woman, whose father is colour blind, marries a normal visioned man. What would be the probability of her sons to be colour blind?

a. 50 %
b. 100 %
c. 75 %
d. 25 %

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