Exercise-1

> Marked Questions are for Revision Questions.

ONLY ONE OPTION CORRECT TYPE

SECTION - A # INTRODUCTION, MENDELISM, MONOHYBRID CROSS, DIHYBRID CROSS, BACK CROSS, TEST CROSS, INCOMPLETE DOMINANCE, CODOMINACE, MULTIPLE ALLELISM, PLEIOTROPY

1.	 Which of the following is incorrect sentence regarding Mendel experiment. (a) Gregor Mendel conducted hybridization experiment on garden pea for seven years. (b) During Mendel's investigations into inheritance it was for the first time that statistical analysis & mathematical logic were applied. (c) His experiments had a small sampling size. 				
	(1) a only	(2) a & c only	(3) c only	(4) None	
2.	Which one is a dominar (1) Pod Colour – Yellow (3) Flower Position – Ax	nt trait out of the characto / kile	ers chosen by Mendel? (2) Seed Colour – Whit (4) Plant height – Dwar	e f	
3.	A hybrid is generally mo (1) Homozygosity (3) Superior genes in hy	ore vigorous than either o ybrid	of the parents, this is due (2) Heterozygosity (4) Mixing of cytoplasm	e to	
4.	Alleles are (1) Alternate forms of gene (3) Homologus chromosomes		(2) Pairs of sex chromosomes(4) None of the above		
5.	A gene that shows it's effect on more than one o (1) Polygene (3) Multifactor gene		characters is (2) Pleotropic gene (4) Multiple gene		
6.	Mendel observed that all the F ₁ progeny plants were (a) Tall (b) Like one of its parents (c) None were Tall (d) Show 3 : 1 ratio Pick up correct option (1) = 2 d and y			(4) a & b only	
7.	A pure tall plant can be differentiated from a hyl (1) By measuring length of plant (3) If all plants are tall after self-pollination		brid tall plant (2) By spraying gibberallins (4) If all plants are dwarf after self-pollination		
8.	When a heterozygous of (1) 1 : 2	dominant is crossed with (2) 2 : 1	homozygous recessive t (3) 3 : 1	than ratio of progeny will be. (4) 1 : 1	
9.	If a cross is made betw what will be the percent (1) 25%	veen Aa TT and aa tt wl tage of red tall plants. (2) 50%	nere A stands for red do	(4) 100%	

10.	120 Plants are produce (1) 90 Red : 30 White	ed on crossing pure red a (2) 30 Red : 90 White	nd pure white flowered p (3) 60 Red : 60 White	ea plants, the ratio is (4) All Red	
11.	On crossing red & whit 60 : 20, then on selfir offsprings would be (1) 72 : 24	e flowered plants the rat	io of red and white flowe red flowered plants, the	ared plants in F_2 generation was a ratio of red & white flowered (4) 84 · 16	
12.	(1) P2 P2Heterosis in plants is of(1) Crossing in unrelate(3) Colchicine induction	btained by ed parents	(2) Treatment by mutage(4) Inbreeding	jens	
13.	Types of genotypes in (1) 4	F ₂ generation of dihybrid (2) 16	cross are (3) 8	(4) 9	
14.	What is ratio of homozy (1) 1/16	/ous plants for both domi (2) 3/16	inant characters in F ₂ of a (3) 4/16	a dihybrid cross? (4) 9/16	
15.ໝ	How many types & in w (1) 4 types in the ratio of (3) 3 type in the ratio of	what ratio the gametes and of 9 : 3 : 3 :1 1 : 2 : 1	e produced by a dihybrid (2) 2 types in the ratio c (4) 4 types in the ratio c	heterozygous. of 1 : 2 : 1 of 1 : 1 : 1 : 1	
16.	Medel's law of segregation is based on separat (1) Gamete formation (3) Pollination		ion of alleles during. (2) Seed formation (4) Embryonic development		
17.	When two hybrids Ttrr (1) 3 : 1	& Rrtt are crossed the ph (2) 1 : 1: 1 : 1	enotypic ratio of offspring (3) 1 : 1	g shall be (4) 9 : 3 : 3 : 1	
18.๖	If selfing occurs in the RRYy, RrYy	plant having genotype R	RrYy, then ratio of given	genotype will be:- RRYY, RrYY	
19.	(1) 1 : 2 : 2 : 4When a tall and red fl progeny dwarf and white(1) TTRR	(2) 1 : 2 : 2 : 1 owered plant crossed w te. What will be the geno (2) TtRR	 (3) 1 : 1 : 1 : 1 ith a dwarf and white flowe type of tall and red flowe (3) TtRr 	 (4) 2 : 2 : 2 : 1 owered plant, phenotype in the red plant (4) TTRr 	
20.24	 Independent assortment of genes does not takes place when. (1) Genes are located on homologous chromosomes (2) Genes are linked and located on same chromosome (3) Genes are located on non-homologous chromosomes (4) All the above 				
21.๖	In snapdragon, when a have pink coloured flow be.	red flower plant is crossiver if plant of F_1 generation	sed with a white flower c ion is crossed with a whi	ones, The resultant hybrid plant te flower ones, the progeny will	
22.	(1) 10% Red.(3) The pink flower & WWhen one gene express(1) Multiple Alleles	/hite flower ratio in 1 : 1 ses itself in more than tv (2) Homozygous	 (2) The Red flower & W (4) The pink, Red and V vo stage then it is called. (3) Heterozygous 	(hite flower ratio in 3 : 1White flower ratio in 1 : 2 : 1(4) Complementary gene	

23.	Blood grouping in humans is controlled by				
	(1) 4 alleles in which I^A(3) 2 alleles in which no	is dominant one is dominant	(2) 3 alleles is which I^A and I^B are codominant(4) 3 alleles is which I^A is recessive		
24.	A man of A blood group man is heterozygous A	o marries a woman of Al	B blood group which type	e of progeny would indicate that	
	(1) AB	(2) A	(3) O	(4) B	
25.	A child of O blood group	p, has B-blood group fatl	her, the genotype of fathe	er would be	
	(1) lºlº	(2) I ^B I ^B	(3) I ^A I ^B	(4) ^B ⁰	
26.১	A child's blood group is	'O' His parents blood gr	oup can not be		
	(1) B & O	(2) A & O	(3) AB	(4) A & B	
27.	Marriages between clos	se relatives should be av	oided because it includes	s more	
	(1) Recessive alleles to (3) Multiple births	come together	(2) Mutations (4) Blood group abnorm	nalities	
20	Inhoritance of ABO bloc	ad groups illustratos			
20.	(1) Polyploidy	(2) multiple allelism	(3) euploidy	(4) incomplete dominance	
29.১	Biologically, marriage is	s prohibited between.			
	(1) Rh ⁺ boy and Rh ⁺ gir	 	(2) Rh⁺ boy and Rh⁻ girl		
	(3) Rh ⁻ boy and Rh ⁻ gi	irl	(4) Rh⁻ boy and Rh⁺ gir		
30.	Pleiotropy is the term in	which a gene influence	s more than one trait. Its	example is	
	(1) Sickle cell anaemia	(2) Haemophilia	(3) Colour blindness	(4) Only 1 and 2	
31.	Skin colour in rodents	is controlled by four alle	les, the possible genotyp	es are	
20					
32.	(1) Population studies a	are made	(2) Individual study is m	nade	
	(3) Mutation is absent		(4) Dominance is present		
SEC	CTION - B # POLYG	ENIC INHERITANC	E. LETHAL GENE. (GENE INTERACTIONS.	
CHR	OMOSOMAL THEO	RY OF INHERITAN	CE, SEX DETERMIN	NATION, LINKAGE, SEX	
		LINKAGE, CR	OSSING OVER		
1.	An example of the quar	ntitative trait in man is			
	(1) Hair colour	(2) Hypertrichosis	(3) Skin colour	(4) Shape of nose	
2.24	The phenotypic ratio in	the F_2 generation for three	ee pairs of polygenes are)	
	(1) 1 : 2 : 1		(2) 9 : 3 : 3 : 1		

- (3) 1 : 4 : 6 : 4 : 1 (4) 1 : 6 : 15 : 20 : 15 : 6 : 1
- 3. A dihybrid ratio of 1:4:6:4:1 is obtained instead of 9:3:3:1. This is an example of
 - (1) Complementary gene (2) Supplementary gene
 - (3) Polygenic inheritance (4) Incomplete dominance

4.	Lethal genes are those which. (1) cause death of the individual in which they a (2) cause death of homozygous infant being for (3) cause death of heterozygous infant being for (4) None of the above	re present med rmed		
5.	In Lathyrus odoratus, the cross between two pu is due to (1) Incomplete dominance	rple flowered plants forms a pink flowered progeny. This (2) Co-dominance		
	(3) Complementary gene interaction	(4) Segregation		
6.	In a cross between two plants, the phenotypic ra	atio of F_2 generation found to be 9 : 3 : 4 is due to.		
	(1) complementary genes	(2) suplementary gene		
	(3) dominant epistatic gene	(4) holandric gene		
7.	If a trait is pad from man to all of his sons only.			
	(1) Gene for that trait is dominant	(2) Gene is located on any chromosome		
	(3) Both above	(4) None of the above		
8.	The polygenic genes show			
	(1) Different genotype(2) Different genotype & phonetype	(2) Different phenotype		
_		(4) None of these		
9.	Polygenic genes show (1) Plicetropy	(2) Continue variations		
	(3) Discontinous variations	(2) Continuous variations (4) lethality		
10 🛰	In a dihybrid cross, E, ratio of 15:1 is due to			
10.24	(1) Supplementary genes	(2) Dominant enistasis		
	(3) Duplicate genes	(4) Recessive epistasis		
11	Enisteria in due to the			
11.	(1) Interaction of two genes of separate loci	(2) Interaction of two same genes		
	(3) Action of polygenes	(4) Action of multiple alleles		
12.	Gene which suppresses other gene's activity bu	t does not lie on the same locus is called		
	(1) Epistatic	(2) Supplementary		
	(3) Hypostatic	(4) Codominant		
13.	The ratio of recessive epistasis is			
	(1) 9 : 3 : 4 (2) 13 : 3	(3) 12 : 3 : 1 (4) 15 : 1		
14.2	Match the type of gene interaction in column 'A'	with phenotypic ratio (F_2) in column 'B'		
	Column A	Column B		
	(p) Incomplete dominance (Monohybrid)	(i) 15 : 1		
	(q) Supplimentary gene action (dihybrid)	(ii) 1 : 2 : 1		
	(r) Duplicate gene	(iii) 9 : 6 : 1		
	(s) Additive gene effect	(iv) 9 : 3 : 4		
	(1) p–i, q–ii, r–iii s–iv	(2) p–ii q–iv, r–iii s–i		
	(3) p—iv, q—iii, r—ii s—i	(4) p–ii q–iv, r–i s–iii		

15.	Grasshopper is an example of XO type of sex determination in which (1) Male has only one-x-Chromosome besides the autosomes (2) Female has a pair of x-chromosomes (3) 1 & 2 both (4) Male have one y-chromosome				
16.	The Drosophila indivi- respectively	duals having chromoso	mal constitution as 2A	+ XXY and 2 A + XY are	
	(1) Males only	(2) Female and male	(3) Male and female	(4) Females only	
17.	In Melandrium, sex det (1) XX – XO	ermination is of (2) ZZ – ZW	(3) XX – XY	(4) XY – XO	
18.	In Drosophila, the sex is determined by (1) The ratio of number of XX–chromosomes to the sets of autosomes (2) X and Y chromosomes (3) The ratio of pairs of X-chromosomes to the pairs of autosomes (4) Whether the egg is fertilized or develops parthenogenetically				
19.	Which of the following bear homogametic male				
	(1) Plants	(2) Man	(3) Insect	(4) Birds	
20.১	If X/A Ratio of two Dros (1) Female & male (3) Inter female & supe	sophila is 0.6 and 0.33 re r male	espectively what would be their sex (2) Super female & super male (4) Inter sex and super female		
21.	Which chromosomes s (1) 2A + XY	et is found in male grass (2) 2A + XO	hopper (3) 2A + YY	(4) 2A + XX	
22.	Which of the following	genotype represent inter	sex Drosophila		
	(1) $2 \text{ A} + XXX$	(2) 3A + XXX	(3) 3A + XXY	(4) 2A + XY	
23.	 Morgan coined the term(a) to describe physical association of gene on a chromosome and the term(b) to describe the generation of non-parental gene combination. a and b are respectively. (1) a-Recombination, b-Linkage (2) a-Recombination, b-Non-recombination (3) a-Linkage, b-Recombination (4) a-crossing over, b-Linkage 				
24.	In Morgan's experiment	nt, what will be percent	age of recombination in	case of body colour and eye	
	(1) 37.2%	(2) 1.3%	(3) 98.7%	(4) 68.2%	
25.	In Drosophila crossing	over occurs in female b	ut not in male. Gene A a	and B are 10 map unit apart on	
	chromosome. A female	e Drosophila with genoty	$r_{\text{pe}} = \frac{\text{AB}}{\text{ab}}$ and male Dros	sophila with genotype $\frac{AB}{ab}$. How	
	many type of gametes	are produced by female	and male Drosophila res	pectively	
	(1) 4 types : 2 types		(2) 2 types : 2 types		
	(3) 4 types : 4 types (4) 4 types : one types				

26.	In a cross between ind were of parental type.	dividuals homozygous for Then the distance betwee	or (a, b) and wild type (- en a and b is	++) 700 out of 1000 individuals	
	(1) 70 map unit	(2) 35 map unit	(3) 30 map unit	(4) 15 map unit	
27.2	Which of the following	show linkage group in co	upling phase		
	$(1) \xrightarrow{A B}$	$(2) \xrightarrow{A b}$	(2) $\stackrel{A b}{\bullet}$		
		$\binom{2}{a}$	(3) a b	(4) a b	
28.	Percentage of recombi of genes would be	nation between A and B	is 9%, A and C 17%, B a	and C is 26%. The arrangement	
	(1) A – B – C	(2) A – C – B	(3) B – C – A	(4) B – A – C	
29.	A colourblind man mar daughters, how many c	ries a normal lady (whos of them would be suffer	se father was colour blind	d) If it produces two sons & two	
	(1) Both sons		(2) Both daughters		
	(3) One son & one dau	ghter	(4) Both sons & both da	aughters	
30.	A Colourblind daughter	is born when			
(1) Father is colourblind, moth		d, mother is normal	(2) Mother is colourblind, father is normal		
	(3) Mother is carrier, fa	ther is normal	(4) Mother is carrier, father is colourblind		
31.	What shall be the ration husband & a carrier with	o of heterozygous, home fe?	ozygous and hemizygou	is in offspring of a colour blind	
	(1) 1 : 1 : 3	(2) 1 : 1 : 1	(3) 2 : 1 : 1	(4) 1 : 2 : 1	
32.	Genes for colourblindn	ess are located on			
	(1) X-chromosome	(2) Y-chromosome	(3) both	(4) None of the above	
33.	Which of the following i	is not a sex linked charad	cters		
	(1) Haemophilia	(2) Colour blindness	(3) Hypertrichosis	(4) Baldness	
34.2	Baldness in man is a				
	(1) Autosomal characte	er	(2) Sex linked characte	r	
	(3) Sex influenced char	racter	(4) 1 and 3 both		
35.2	A gene located on Y-ch	promosome and therefore	e. transmitted from fathe	r to son is known as	
	(1) Supplementary gene		(2) Complementary gene		
	(3) Duplicate gene		(4) Holandric gene		
36.2	A colourblind man man	ries a daughter of colour	olind father, then in the o	ffsprinas	
	(1) All sons are colourb	blind	(2) All daughters are c	olourblind	
	(3) Half sons are colou	rblind	(4) No daughter is colo	urblind	
37.১	A woman with normal husband dies and ma	vision marries a man wit arries a colourblind ma	h normal vision and give n what is the probabil	es birth to a colourblind son Her ity of her children having the	
	(1) 50% colourblind so	ns and 50% colourblind c	laughters		
	(2) All sons will be colo	urblind & daughter will be	e carrier		

- (3) All daughters will be colurblind & sons will be normal
- (4) 50% sons will be colourblind and all daughters will be normal

BIO	LOGY FOR NEET	PRINC	PRINCIPLES OF INHERITANCE & VARIATION			
38.	A child is with an extra (1) Synapsis	a chromosome in each o (2) Crossing-over	of its cell, this condition is (3) Non-disjuntion	the result of (4) Disjunction		
39.	If a cross is made bett these one has domina	ween two individuals ea int trait what is the prob	ach having genotype Bb, ability that the second off	two offspring are obtained. Out of spring will exhibit recessive trait		
	SECTION - C # M		REE ANALYSIS, GE	NETIC DISORDERS		
1.	Chromosomal aberrat (1) Germinal cells	ions are commonly obs (2) Cancer cells	erved in (3) Nail base cells	(4) Gametes		
2.	Monosomic trisomy is (1) 2 N – 1 + 1	(2) 2N –1 –1	(3) 2N –1	(4) 2N + 1 + 1.		
3.	If transition occurs in what shall be the new	the second and third r sequence?	nucleotides of the DNA s	segement reading ATG CTC GA,		
	(1) AAG CTC GA	(2) ACA GTC GA	(3) ACA CAC GA	(4) ACA CTC GA		
4.	Symbol ^(*) used in pe (1) Five offspring with (3) Five unaffected off	digree analysis, represe unspecified sex spring	ents (2) Five diseased offs (4) Five affected offs	spring prings		
5.	Variations are: (1) Degree by which p (2) Degree by which p (3) Process by which o	rogeny differs from thei rogeny similar to their p characters are passed o	r parents parents on from parent to progeny	/		

- (4) True breeding lines
- **6.** Given pedigree represents inheritance of myotonic dystrophy which is an autosomal dominant disorder. What will be genotype of parents?



(1) Mother - aa Father - AA	(2) Mother - AA Father - aa
(3) Mother - Aa Father - aa	(4) Mother - aa Father - aa

- 7. No. of Bar Body in XXXXX female
 - (1) 1 (2) 2 (3) 3 (4) 4
- 8.> In humans, gene producing the disease phenylketonuria also produces a number of abnormal phenotypic traits, which are collectively called syndrome. This gene results mental retardation, widely spaced incrisors pigmented patches on the skin and excessive sweating such types of genes are called
 (1) Polygene
 (2) Pleotropic gene
 - (1) Polygene(3) Lethal gene
 - (4) Supplimentary gene

9.	A man with a certain sons). All the daughter the following mode of ir (1) Sex – linked domina (3) Sex – linked recession	disease marries a norm s suffer from their fathe heritance do you sugge ant ive	nal woman. They have r's disease but none of st for this disease: (2) Sex – limited recess (4) Autosomal dominar	8 children (3) daughters and 5 the sons are affected. Which of sive nt		
10.	Which is a dominant tra (1) Colour blindness	iit (2) Albinism	(3) Haemophilia	(4) Rh factor		
11.	Albinism is a congentia (1) Tyrosinase	l disorder resulting from (2) Catalase	the lack of enzyme (3) Fructokinase	(4) Xanthine-oxidase		
12.১	Patau's syndrome in hu (1) Trisomy of 18 th auto (3) Monosomy of 5 th aut	iman being is caused du some tosome	e to (2) Trisomy of 13 th auto (4) Monosomy of 22 th a	osome nutosome		
13.	Which of the following i (1) Dosage compensati (3) Lyon's hypothesis	s not associated with Ba on	rr– body (2) Faculatative hetero (4) None of these	chromatin		
14.	A man is heterozygous What proportion of his s (1) 1 / 16	s for autosomal genes A sperms will be abh (2) 1 / 4	A and B and is also herr (3) 1 / 8	nizygous for hemophilic gene h. (4) 1 / 32		
15.	Phenylketonuria is (1) Autosomal Recessive trait (2) The affected individual lacks an enzyme that converts the phenyl allanine amino acid into tyrosine (3) 1 & 2 both (4) It is sex linked recessive disease					
16.	 Which is mismatched (1) Down's syndrome: affected individual with furrowed tongue and partially open mouth (2) Klinefelter syndrome: Gynaecomastia, 45 chromosome (3) Turner's syndrome: Absence of one of the x chromosome (4) Edward's syndrome: Trisomy of 18th chromosome 					
17.	Most common and prev (a) Haemophilia (c) Sickle cell anaemia (1) a & b only	valent Mendelian disorde (2) b, c & d only	ers are (b) cystic fibrosis (d) colour blindness (3) a, b & c only	(4) a, b, c, d all		
18.	Sickle cell anaemia is a (1) Epistasis	n example of (2) Codominance	(3) Pleiotropy	(4) Incomplete dominance		
19.১	Predict from the followin (1) Character is domina	ng chart	osome			
	(2) Character is carried	(2) Character is carried by Y chromosome				

(3) Character is sex linked recessive(4) Character is autosomal recessive

20. 🔊						
		1				
	Above pedigree chart re	epresent				
	(1) Autosomal recessive	e trait	(2) Sev	k linked domi	hant trait	
	(3) Sex linked recessive	e trait	(4) Aut	osomal domi	nant trait	
04		ide Klimer felde wie er med				
21.	(1) One	(2) Two	rome. Numb (3) Thr	er of barr boo	(4) None	
		MISCELLAN	EOUS QU	ESTIONS		
1.	When AABBcc is cross	ed with AaBbCc ther	n the ratio of	hvbrid for all	the three genes is	
	(1) 1/8	(2) 1/4	(3) 1/1	6	(4) 1/32	
2	Which of the following (haracters of Dreson	hilo is not s	uitable for gor	otical studios?	
£.	 (a) They could be grow (b) They complete their (c) Single mating produ (d) They have many typ (e) Male & Female flies 	n on simple synthetic life cycle in about 2- ces few number of p pes of hereditary vari are not easily disting	c medium in - <i>weeks</i> progeny flies iations that c guishable	laboratory :an be seen w	/ith low power microscope.	
	(1) a, b, c	(2) a, b, c, d, e	(3) d a	nd e	(4) c and e	
3.	Match the following – (1) Pleiotropy (2) Sex linked disease (3) Sex limited trait (4) Tyrosinase (1) 1a,2b,3d,4c	 a. Sickle cell anaen b. Colour blindness c. Albinism d. Moustaches (2) 1c,2d,3a,4b 	nia 5 (3) 1a,	2b,3c,4d	(4) 1d,2a,3b,4c	
4.	(1) is a/an(2	2)recessive trait t	that can be	transmitted f	rom parents to the offsprin	ig when
	both the parents are -(3 (1) 1.Sickle cell anaemi (2) 1.Haemophilia (3) 1.Phenyl ketonuria (4) 1.Sickle cell anaemi	a 2. Sex linke 2. Autosom 2. autosom a 2. autosom	ed ne linked ne linked ne linked	 3. Heterozy 3. Heterozy 3. Homozyg 3. Heterozy 	gous gous jous gous	-
5.	Read the following state (a) Genes are the units (b) Gene contains the in (c) Gene which code fo (d) Mendel called Gene Pick up incorrect staten (1) c only	ements: of inheritance. nformation that is rec r a pair of contrasting as 'Factors' nent (2) d only	quired to exp g traits are k (3) b &	press a partici nown as allel c only	ular trait in an organism. es. (4) None	
6	Failure of outokinesis a	fter telonhase stage	of cell resul	r It in an increa	se in a whole set of chrom	nsomer
υ.	in an organism & this pl (1) Animals	henomenon known a (2) Plants	as polyploidy (3) Bac	this condition	n is often seen in - (4) Protists	USUMES

7.	In Cucurbita, W is epist produces white fruits. V (1) 9 white : 7 yellow : 0 (3) 4 white : 3 yellow : 1	tatic over Y and y gene n Vhat is the ratio of fruits in) green I green	formally responsible for yellow and green colour fruits in the progeny of cross Ww Yy × wwYy? (2) 3 white : 4 yellow : 1 green (4) 2 white : 1 yellow : 1 green.	
8.	R is dominant red flow crossed with homozyg plants is (1) 64	er trait while r is recessiv ous red flowered plant. (2) 32	ve white flower trait. Hete 64 offspring are produc (3) 16	erozygous red flowered plant is ced. Number of white flowered (4) 0
9.	Heterozygous tall plant (1) Law of dominance (3) Law of independent	is selfed. It produces bot assortment	th tall and dwarf plants. T (2) Law of segregation (4) Incomplete dominar	This confirms Mendel's law
10.	In Mirabilis jalapa, RR, RR and rr was crossed (1) All red	Rr and rr determine red with dominant parent, th (2) 1 Red : 1 Pink	d, pink and white colour e ratio produced is. (3) All white	respectively.When F ₁ hybrid of (4) 2 Pink : 2 white
11.	Dihybrid test cross ratio (1) 9 : 3 : 3 : 1	o is (2) 1 : 1 : 1 : 1	(3) 3 : 1	(4) 1 : 1
12.	Tt × tt is (1) Test cross	(2) Back cross	(3) Hybridisation	(4) Reciprocal cross.
13.	In sickle cell anaemia, t (1) VI	there is change in amino (2) VII	acid in β chain at positio (3) IX	n (4) X
14.	Correct reason of Mendel's success was (1) He repeated each experiment several times (2) Traits chosen by him had genes far apart so that linkage was absent (3) He kept record of all experiments (4) He used statistical techniques.			
15.	Number of genotypes f	ound in F_2 progeny of a c	lihybrid cross is	<i></i>
	(1) 9	(2) 6	(3) 3	(4) 1
16.	How many types of gar (1) 2	netes are formed by Pea (2) 4	plant having YYRRtt Ge (3) 8	notype? (4) None of the above
17.	A disease sometimes forgetfullness and trem	found in persons above or of hands is	40 which is characteris	sed by poor CNS coordination,
	(1) Epilepsy	(2) Alzheimer's disease	e (3) Migraine	(4) Schizophrenia
18.	A boy with normal brother and colourblind sister (1) Father normal, mother colourblind (3) Both colourblind		will have his parents (2) Both normal (4) Father colourblind, mother normal	
19.	Deficiency of VIII factor (1) Haemophilia A	leads to (2) Haemophilia B	(3) Haemophilia C	(4) Haemophilia D
20.	Polydactyly in man is d (1) Autosomal recessiv (3) Sex linked recessive	ue to e allele e allele	(2) Autosomal dominan (4) Sex linked dominan	t allele t allele

21.	As per Lyon's hypothe called	esis, one of the two X-	chromosomes undergo	es heterochromatisation and is
	(1) Barr body	(2) karyotypic body	(3) Genotypic body	(4) Phenotypic body
22.	One of the following is (1) Haemphilia	holandric inheritance (2) Epidermolysis	(3) Webbed toes	(4) Turner's syndrome
23.	Edward's syndrome ch (1) 5	aracterised by mental de (2) 9	ficiency is caused by tris (3) 15	omy of chromosome (4) 18
24.	In quantitative inheritar (1) 1 : 4 : 6 : 4 : 1	the F_2 ratio obtained in a (2) 15 : 1	dihybrid cross is (3) 12 : 3 : 1	(4) 9 : 7
25.	Complete dominance d (1) Mirabilis jalapa (3) Pisum sativum	loes not occur in	(2) Oenothera lamarck (4) Lathyrus odoratus	iana
26.	Blood group of a couple (1) O group only	e are AB and O. The pos (2) AB blood group	sible blood group of child (3) A or B	dren would be (4) AB and O
27.	Out of a population of wrinkled Pea plant, what (1) 800	⁴ 800 individuals in F_2 g at would be number of ye (2) 400	eneration of a cross be low and wrinkled seede (3) 200	etween yellow round and green ed plants (4) 150.
28.	Pink flowered progeny (1) Dominance	of red and white flowered (2) Epistasis	d parents of Antirrhinum (3) Codominance	majus is produced due to (4) Incomplete dominance.
29.	Multiple alleles control (1) Colour blindness	inheritance of (2) Sickle cell anaemia	(3) Blood groups	(4) Phenylketonuria.
30.	Phenotypic and genoty (1) 1 : 2 : 1 and 1 : 2 : 1 (3) 9 : 6 and 3 : 1	pic ratio in F_2 generation	in incomplete dominanc (2) 3 : 1 and 1 : 2 : 1 (4) 9 : 3 : 3 : 1 and 1 : 2	e is 2 : 1 : 4 : 1 : 1 : 2 : 1 : 2 : 1
31.	Mendel's work was got (1) De Vries	republished in 'Flora' by (2) Tschermak	(3) Correns	(4) All the above.
32.	Mendel's work was put (1) 1866	olished in (2) 1884	(3) 1900	(4) 1901
33.	The 'Christmas disease (1) Homogentisic acid o (3) Factor XI	e' patient lacks antihaem oxidase	ophilic (2) Factor VIII (4) Factor IX	
34.	Ishiara charts are used (1) Eye infection	by opthalamologists for (2) Night blindness	detecting (3) Colour blindness	(4) Finger prints.
35.	Haemophilia does not o (1) It is autosomal rece (3) They have only one	occur in women because ssive X-chromosome	(2) Women have to be (4) They are more resis	homozygous which is fatal stant to this disorder.
36.	Albinism is due to herd (1) Amylase (3) Acetyl choline ester	itary deficiency of enzym ase	e (2) Carbonic anhydrase (4) Tyrosinase	e

37.	Presence of one Barr b (1) Colour blind	ody in WBC indicates that (2) Normal male	at the person is (3) Normal female	(4) Haemophilic	
38.	Mode of inheritance of (1) Myopia	haemophilia resembles t (2) Skin colour	hat of (3) Colour blindness	(4) Night blindness	
39.	Tay Sach's disease is o (1) Sex-linked recessiv (3) Autosomal dominan	due to e gene it gene	(2) Sex -linked dominar (4) Autosomal recessiv	nt gene e gene	
40.	Chromsomal doubling f (1) PEG	or producing polyploid pl (2) NAA	ants is carried out by (3) EMS	(4) Colchicine	
41.	A man and woman, b colour blind is	oth having colour blind	fathers, marry, Probabil	ity of their first daughter being	
	(1) 100%	(2) 50%	(3) 25%	(4) 0%	
42.	Number of linkage grou	ips in Pisum sativum is	(0) 7	(1) 40	
	(1) 4	(2) 5	(3) 7	(4) 10	
43.	The male has a mutation (1) None of the progeny (3) Half of progeny	The male has a mutation in his mitochondria. During segregation, the mutation is found in1) None of the progeny(2) One third of progeny3) Half of progeny(4) Whole of progeny			
44.	A hybrid formed by the is crossed with pure dw (1) 2	cross between pure tall varf green seeded plants. (2) 4	green seeded and pure Number of phenotypes (3) 6	dwarf yellow seeded Pea plant would be (4) 8.	
45.	Three children in a fam parents	nily have blood types O,	AB and B respectively.	What are the genotypes of their	
	(1) I i and I	(2) I ^A I ^B and ii	(3) I ^B I ^B and I ^A I ^A	(4) I ^A I ^A and I ^B i	
46.	A person with blood gro (1) Antigen A and antib (3) Antigen A and antib	oups A possesses ody B ody b	(2) Antigen B and antib	ody a	
47	Amine soid substituted		(i) no anagon ana no c		
47.	(1) Glutamic acid for va	line in alpha chain	(2) Glutamic acid for va	line in heta chain	
	(3) Valine for gutamic a	icid in alpha chain	(4) Valine for glutamic a	acid in beta chain	
48.	Number of Barr bodies	in human female sufferir	na from Down's syndrom	e would be	
	(1) 3	(2) 1	(3) 2	(4) zero	
49.	Sex determination in Drosophila melanogaster is based on (1) XY mechanism				
	(2) Genic balance betw(3) Pseudoalleles(4) Environment-chrom	een X-chromosome and osome interaction	atuosomes		
50.	Gynaecomastia procee	ds			
	(1) Turner's syndrome(3) Down's syndrome		(2) Klinefelter's syndror (4) SARS	ne	
51.	Colchicine brings about	t			
	(1) Gene mutation		(2) Chromosome aberr	ation	
	(3) Quick replication		(4) Duplication of chron	nosomes.	

52.	Mongolism is (1) Turner's syndrome (3) Down's syndrome		(2) Klinefelter's syndrome (4) Hypothalmic syndrome	
53.	Albinism is a result of ir (1) Alanine	nability of the system to c (2) Tryptophan	convert amino acid (3) Lysine	(4) Phenylalanine
54.	One centimorgan is eq (1) 1	ual to recombination freq (2) 0·1	uency of (3) 10	(4) 0.01
55.	Multiple alleles represe (1) More than two altern (2) More than two altern (3) Occurrence of one of (4) None of the above.	nts. nate forms of gene found nate forms of a gene foun gene in two chromosome	l at same locus nd at different loci es	
56.	Number of genotypes p (1) 4	oroduced when individual (2) 45	ls of genotype 'YyRrTt' a (3) 28	re crossed with each other (4) 27
57.	Independent assortmer (1) Monohybrid cross	nt can be deduced from (2) Test cross	(3) Back cross	(4) Dihybird cross
58.	Which trait was not inco (1) Colour of Pea seed (3) Colour of Pea plant	orporated by Mendel for	his experiments? (2) Colour of Pea flowe (4) Colour of Pea pod	ır
59.	Incomplete dominance (1) Correns	was discovered by (2) Mendel	(3) Johannsen	(4) Bateson.
60.	Which blood group car group of recipient?	a safely be transfused in	emergency when there	is no time to analyse the blood
61.	(1) C and theBarr body is observed i(1) Basophils of male(3) Basophils of female	n	(2) Neutrophils of fema(4) Eosinophils	le
62.	Melanurea (black urine (1) Alanine) is caused by abnormal (2) Tyrosine	catabolism of (3) Proline	(4) Tryptophan
63.	Which is not an X-linked recessive disease (1) β- Thalassemia (3) Colour blindness		(2) Haemophilia (4) Glucose 6-phophate dehydrogenase deficiency	
64.	The condition of sickle cell anaemia is due to (1) Chromosomal mutation (3) Point mutation		(2) Silent mutation (4) Frame-shift mutation	
65.	Pure tall plant is crosse tall and dwarf in ratio of (1) Dominance (3) Incomplete dominar	ed to dwarf plant F₁ gen f 3 : 1. The phenomenon nce	eration has only tall plan is due to (2) Codominance (4) Heredity	ts while F_2 generation has both

PRINCIPLES OF INHERITANCE & VARIATION

(4) 9 / 16

66.	A baby of blood	group A cannot belor	ng to parents of bloo	d group
-----	-----------------	----------------------	-----------------------	---------

(1) Husband O, wife AB	(2) Husband A, wife B
(3) Husband B, wife O	(4) Husband AB, wife A

67. When pure long plant having white flower is crossed with pure dwarf plant having red flower, the dwarf progeny in F2 generation will be

(1) 1 / 16(2) 2 / 16(3) 4 / 16

68. Accumulation of protein, amyloid β - peptide, in human brain causes

(1) Addison's disease (2) Huntington's disease

(3) Alzheimer's disease (4) Parkinson's disease

69. Match the columns

S.no.	I		II
1.	Sickle cell anaemia	а	7th chromosome
2.	Phenylketonuria	b	4th chromosome
3.	Cystic fibrosis	С	11th chromosome
4.	Huntington's disease	d	X-chromosome
5.	Colour blindness	е	12th chromosome

(1) 1 – a, 2 – c, 3 – d, 4– b, 5 – e	(2) 1 - c, 2 - e, 3 - a, 4 - b, 5 - c
(3) 1 – b, 2 – c, 3 – d, 4– e, 5 – a	(4) 1 – b, 2 – a, 3 – c, 4 – e, 5 – c

^{70.} Which of the following is correct for dihybrid cross?

(1) 1 YYRR, 2YyRR, 2yyRr, 4 YyRr	(2) 1 YYRR, 3YyRR, 2yyRr, 3 YyRr
(3) 3 YYRR, 3YyRR, 2yyRr, 4YyRr	(4) 3 YYRR, 1YyRR, 2yyRr, 3 YyRr

71. When heterozygous red flowered plant is crossed with white flowered plant the progeny will show ratio of

(1) 350 red : 350 white (2) 450 red : 250 white (3) 380 red : 220 white (4) None of the above.

72. Down's syndrome and Turner's syndrome are due to respectively

	(1) Monosomic and nullisomic conditions(3) Trisomic and tertrasomic conditions		(2) Trisomic and monosomic conditions(4) Trisomic and tetrasomic conditions		
73.	Number of chromosomes in male grasshopper is				
	(1) 8	(2) 45	(3) 46	(4) 23	
74. Epicanthus skin fold above the eyes and transverse palmer crease are typ			pical symptoms of		
	(1) Cri-du-chat		(2) Klinefelter's syndrome		
	(3) Down's syndrome		(4) Turner's syndrome		
75.	Longest chromosomes occur in				
	(1) Lilium	(2) Zea mays	(3) Allium	(4) Trillium	
76.	Number of linkage groups in Escherichia coli is				

	(1) 1	(2) 2	(3) 4	(4) 5
77.	Which one of the follow	ving characters studied b	y Mendel in graden pea	was found to be dominant?

	0	,	0	
(1) Green seed colour		(2) Termi	nal flowe	ər

	(
(3) Green pod colour	(4) Wrinkled seed

78.	Which of the following (1) Ww × ww	is a test cross? (2) WW × ww	(3) Ww × Ww	(4) ww × ww
79.	Which of the following (1) Both are recessive	is the best suited for cod (2) Both are dominant	ominance (3) One is recessive	(4) One is dominant
80.	In F_2 generation quanti (1) 9: 3 : 3 : 1	tative inheritance ratio 1 (2) 8 : 6 : 4 : 1	: 4 : 6 : 4 : 1 is obtained (3) 7 : 4 : 1 : 4	instead of (4) 6 : 6 : 4 : 7
81.	A dihybrid test cross yi (1) Homozygous condi (2) 4 different types of (3) 4 different types of (4) 4 different types of	elding a result of 1 : 1 : 1 tion of the F_1 dihybrid gametes produced by the gametes produced by the F_1 generation dihybrids.	: 1 ratio is indicative of e F_1 dihybrid e F_1 parent	(,, , , , , , , , , , , , , , , , , , ,
82.	How many combination	n of gametes will be prod (2) 4	uced by an organism wit (3) 9	th AaBBCc genotypes? (4) 6
83.	The phenomenon of a (1) Multiple allelism (3) Incomplete dominat	single gene regulating se	everal phenotypes is call (2) Epistasis (4) Pleotropism	ed
84.	Inheritance of blood gro (a) Codominance (c) Multiple allelism (1) a, b	oup is (2) b, d	(b) Incomplete domina (d) Multiple gene (3) a, c	nce (4) b, c
85.	Genes when close toge (1) Mutation	ether on a chromosome i (2) Linkage	t is called. (3) Translation	(4) Transcription
86.	In human beings 45 chromosomes/single X/XO abnormality causes(1) Down's syndrome(2) Turner's syndrome(3) Klinefelter's syndrome(4) Edward's syndrome			
87.	Both sickle cell anaemi (1) Congenital disorder (3) Bacteria-related dis	ia and Huntingtion's chor s eases	ea are (2) Pollutant induced d (4) Virus-related disord	isorders Iers.
88.	In gynandromorphs, (1) Some cells of body (2) All cells have XX ge (3) All cells have XY ge (4) All cells with genoty	contain XX and some ce enotype enotype rpe XXY	ells with genotype XY	

Exercise-2

- 1. In Grasshopper, rosy body colour is caused by a recessive mutation. The wild -type body colour is green. If the gene for body colour is on the X-chromosome, what kind of progeny would be obtained from a mating between a rosy female and a wild -type male
 - (1) All the daughters will be green and all the sons will be rosy
 - (2) 50% daughters will be green and 50% sons will be rosy
 - (3) All offspring will be green irrespective of sex
 - (4) All offspering will be rosy irrespective of sex
- 2. A man and a women who both appear normal have a child together, who has sickle cell anaemia. Sickle cell anaemia is an autosomal recessive trait. The woman becomes pregnant again and is told that she is carrying fraternal twins. What is the probability that both of the couple's twins will develop sickle cell anaemia (8th CBO)

3. ► The pedigree and the corresponding autoradiograph of restriction map of a family with two children is shown below. The genotype of child 1 is (4th NSEB)



4. A pedigree is shown below for a disease that is autosomal dominant. The genetic make up of the first generation is.
 (2th NSEB)



5. If the blood group of father is 'A' and that of mother is 'B'. The blood group of their child could be -

- (1) A or B or AB (2) AB only (3) A or B or AB or O (4) A or B only
- 6. Sickle cell anemia is caused by : [KVPY_2009_SB] (1) complete absence of the haemoglobin gene (3) increased affinity of haemoglobin for oxygen (4) transcription of the haemoglobin protein
 7. The probability of having a girl child with blood group O when the parents have blood group A and B is : [KVPY_2009_SB] (1) 0% (2) at least 50% (3) at most 25% (4) exactly 75 %
- 8. Gregor Mendel showed that unit factors exist in pairs and exhibit as dominant-recessive relationship. These unit factors, in modern terminology, are called: [KVPY_2009_SB]
 (1) genes
 (2) alleles
 (3) loci
 (4) determinants

[KVPY 2007 SB]

9.	Male offsprings of whic (1) Haemophiliac fathe (2) Haemophiliac fathe (3) Normal father and I (4) Normal father and I	ch of the following couple r and normal non-carrie r and normal carrier mo normal carrier mother naemophiliac mother	es have the highest chan r mother ther	ce of haemophil [K	ia? \$VPY_2009_SB]
10.	A women heterozygou daughters, color blind	us for color blindness n daughters, normal sons	narries a color blind ma and color blind sons in F	n. What be the 1 generation?	ratios of carrier
	(A) 1:2:2:1	(B) 2:1:1:2	(C) 1:1:1:1	[(D) 1:1:2:2	(VPY_2014_SA]
11.	In a test cross of F ₁ ge aabb (450), Aabb (50),	eneration having a genot , aaBb (50)	ype AaBb, following proc	geny were obtair	ned; AaBb (450), (NSEB-2016)
	How far in centimorgar	ns (cM) are the a and b	genes?		
	(1) 100	(2) 90	(3) 10	(4) 1	
12.	When the fruit of a spectrum categories were 20, 25 involved?	ecific plant species were 5, 30, 35 and 40 grams	collected they exhibited . If it is a polygene inher	a variation in we ritance, how ma	eight. The weight ny gene loci are (NSEB-2016)
	(1) 2	(2) 3	(3) 4	(4) 5	
	PART - I : N	EET / AIPMT QU	ESTION (PREVIO	DUS YEAR	S)
1.	Which is correct about (1) Terminal pod is dor (3) Green coloured poo	traits chosen by Mende minant d is dominant	(2) Constricted pod is(4) Tall plants are rece	dominant ssive.	(AIPMT-2000)
2.	Tallness (T–) is domin (rr). A plant with genot plants with red flowers	ant over dwarfness (tt) v ype TtRr is crossed with is	while red flower colour (R plant of genotype ttrr. P	 -) is dominant of ercentage of pro (4) 40000 	over white colour ogeny having tall (AIPMT-2000)
	(1) 25%	(2) 50%	(3) 75%	(4) 100%	
3.					
	Independent assortme (1) Genes located on t (2) Genes located on t (3) Genes located on r (4) All the above	nt is absent in case of he same chromosome nomologous chromosom nonhomologous chromos	es somes		(AIPMT-2001)
4.	Independent assortme (1) Genes located on t (2) Genes located on t (3) Genes located on r (4) All the above In Pea, wrinkling of see	nt is absent in case of he same chromosome nomologous chromosom nonhomologous chromos eds is due to nonformati	es somes on of starch because of t	he absence of a	(AIPMT-2001)
4.	Independent assortme (1) Genes located on t (2) Genes located on t (3) Genes located on t (4) All the above In Pea, wrinkling of sec (1) Amylase	nt is absent in case of he same chromosome nomologous chromosom nonhomologous chromos eds is due to nonformati (2) Invertase	es somes on of starch because of t (3) Branching enzyme	he absence of a (4) Diastase	(AIPMT-2001) n enzyme (AIPMT-2001)

6.	Pleiotropic effect is four (1) Human skin colour	nd in (2) Night blindness	(3) haemophilia	(4) Sickle cell a	(AIPMT-2001) naemia
7.	A diploid cell is treated (1) Diploid	with colchicine. It becom (2) Monoploid	es (3) Triploid	(4) Tetraploid	AIPMT-2002)
8.	Which is correct match (1) Parkinson's disease (2) Haemophilia – Y-ch (3) Down's syndrome – (4) Sickle cell anemia –	e – X and Y chromosome romosome - 21st chromosome - chromosomal disorder	S		(AIPMT-2002)
9.	A diseased man married diseased while the sons (1) Sex-linked recessive (3) Autosomal character	es a normal woman. The s are normal. The gene c e er	couple has 3 daughters of the disease is (2) Sex linked dominan (4) Sex limited characte	and 5 sons. The t er	daughters are (AIPMT-2002)
10.	Three genes a b c sho genes will be	w crossing over 20% be	etween b and c and 8%	between a and c	: Sequence of (AIPMT-2002)
	(1) b a c	(2) a b c	(3) a c b	(4) None of the	above
11.	Most favourite and idea (1) Housefly	al material for researches (2) Mosquito	in genetics is (3) Frog	(4) Fruitfly	(AIPMT-2003)
12.	Which one of the follow	ing traits of Garden Pea	studied by Mendel was a	a recessive featur	re? (AIPMT-2003)
	(1) Axial flower position	(2) Green seeds colour	(3) Green pod colour	(4) Round seed	shape.
13.	Two crosses between reversed in one cross a	the same pair of genoty	ypes/phenotypes in whic	ch the sources o	f gametes are (AIPMT-2003)
	(1) Test cross	(2) Reverse cross	(3) Dihybrid cross	(4) Reciprocal c	ross
14.	When a cluster of gene (1) Do not show chrome (3) Do not show indepe	es show linkage behaviou osome map endent assortment	r, they (2) Induce cell division (4) Show recombinatior	n during meiosis	(AIPMT-2003)
15.	Linkage map of X-chro bobbed hair (b) at the c	omosome of fruitfly has other. The recombination	66 map units with yello frequency between y an	w body gene(y) d b gene would b	at one end & e (AIPMT-2003)
	(1) 66%	(2) > 50%	(3) 50%	(4) 100%	
16.	A harmful condition whi	ich is also a potential sav	viour form a mosquito bo	rne infectious disc	ease (AIPMT-2003)
	(1) Thalassemia	(2) Sickle cell anaemia	(3) Leukemia	(4) Pernicious a	naemia
17.	Genetic map is one that (1) Establishes sites of (2) Establishes the vari (3) Shows the stages d (4) Shows distribution of	t the gene on a chromoso ous stages in gene evolu uring cell division of various species in a reg	me Ition gion		(AIPMT-2003)

18.	One of the genes prese	ent exclusively on the X-c	chromosome in humans i	is concerned wit	h
	(1) Baldness		(2) Red-green colourbli	ndness	(AIPMT-2003)
	(3) Facial hair / mousta	ches in males	(4) Night blindness		
19.	Self fertilising trihybrid p (1) Eight different game (2) Four different game (3) Eight different game (4) Eight different game	blants form etes and 64 different zygo tes and sixteen different etes and sixteen different etes and thirty two different	otes zygotes zygotes nt zygotes		(AIPMT-2004)
20.	A mutation at a gene lo (1) DNA replication (3) RNA transcription pa	cus changes a character attern	due to change in (2) Protein synthesis pa (4) Protein structure	attern	(AIPMT-2004)
21.	A normal woman whose	e father was colour blind	is married to normal visi	oned man. Thei	r sons would be (AIPMT-2004)
	(1) 75% colour blind	(2) 50% colour blind	(3) 100% colour blind	(4) All normal.	
22.	In a plant, red fruit (R) A plant with RRTt geno (1) All red fruit, tall 25% (3) All red fruit and tall 7	is dominant over yellov type is crossed with plan 75%	w fruit (r) and tallness (t of rrtt genotype. The pr (2) All red fruit, tall 50% (4) All red fruit and tall.	T) dominant ove ogeny is	er shortness (t). (AIPMT-2004)
23.	For finding the different genotype	nt types of gametes pro	oduced by genotype Aa	aBb, it should b	e crossed with (AIPMT-2005)
	(1) AABB	(2) aabb	(3) AaBb	(4) aaBB	
24.	A normal couple has hereditary disorder but (1) Sex-limited recessiv (3) Sex-linked dominan	seven children (2 daug none of the daughters is re t	ghers and 5 sons). Thi affected. Which is the in (2) Autosomal dominar (4) Sex-linked recessiv	ree of the sons heritance type it e	s suffer from a (AIPMT-2005)
25.	A woman with 47 chron	nosome due to presence	of additional 21 chromo	some is chracte	rised by (AIPMT-2005)
	(1) Super female	(2) Turner's syndrome	(3) Down's syndrome	(4) Triploidy	
26.	A woman with normal the couple is a boy. Thi	vision but with colourblin s boy	nd father marries a color	urblind man. The	e fourth child of (AIPMT-2005)
	(1) May or may not be of(3) Must have normal vi(4) Will be partially color	colourblind ision urblind due to being hete	(2) Must be colourblind erozygous		
27.	Phenotype of an organi (1) Mutations and linkag (2) Genotype and envir (3) Cytoplasmic effects (4) Environmental chan	sm is the result to ges onment interactions and nutrition ges and sexaul dimorphi	ism		(AIPMT-2006)

28.	In Mendel's experiments with Garden Pea, round seed shape (RR) was dominant over wrinkled seeds (rr), yellow cotyledons (YY) was dominant over green cotyledons (yy) What are expected phenotype in F ₂ generation after crossing of RRYY x rryy ? (AIPMT-2006) (1) Only wrinkled seeds with green cotyledons (2) Only wrinkled seeds with yellow cotyledons (3) Only round seeds with green cotyledons (4) Round seeds with yellow cotyledons and wrinkled seeds with green cotyedons.				
29.	Sickle cell anaemia has (1) It is controlled by do (3) It is not a fatal disea	not been elimainated fro minant genes se	om African population as (2) It is controlled by red (4) It provides immunity	(A cessive genes against malaria	IPMT-2006)
30.	Which of the following is	s the most suitable medi	um for culture of Drosoph	nila melanogaster (A	JPMT-2006)
	(1) Cow dung	(2) Moist bread	(3) Agar agar	(4) Ripe Banana	
31.	Cri-du-chat syndrome in (1) Trisomy of 21st chro (2) Loss of half of short (3) Loss of half of long a (4) Fertilization of an XX	n humans is caused by omosome arm of chromosome 5 arm of chromosome 5 K egg by a normal Y- bea	aring sperm.	(A	IPMT-2006)
32.	Both sickle cell anaemia (1) Virus related diseas (3) Congential disorders	a and Huntington's chore es s	ea are (2) Bacteria related dise (4) Pollution induced dis	(A pases sorders	IPMT-2006)
33.	R and Y genes of Maiz F_2 generation will show (1) Sagregation in 9: 3 : (3) Higher number of particular sectors (3) for the sector of the sector (3) for the sect	ze lie very close to each : 3 : 1 ratio arental types	other. When RRYY and(2) Sagregation is 3 : 1(4) Higher number of re	d rryy genotype are (A ratio combinant types	e hybridised, IPMT-2007)
34.	Telomeres with repetitiv (1) Act as replicons (3) Help in chromosome	ve DNA sequences	(2) Are transcription initi(4) Prevent chromosom	(A ators e loss.	IPMT-2007)
35.	Test cross involves (1) Crossing between tw (2) Crossing between tw (3) Crossing the F_1 hybrid (4) Crossing between tw	vo genotypes with domin vo genotypes with recess rid with double recessive vo F ₁ hybrids.	ant trait sive trait genotype	(AI	IPMT-2006)
36.	Lack of independent as	sortment between two ge	enes A and B would be d	ue to	
	(1) Crossing over	(2) Linkage	(3) Repulsion	(A) (4) Recombination	וPMT-2004) ו.
37.	Recessive gene presen (1) Lethal (3) Expressed in males	t on one X- chromosome	e of humans will be (2) Sublethal (4) Expressed in female	(A •s.	IPMT-2004)

PRINCIPLES OF INHERITANCE & VARIATION

38.	Genotype of hybrid is k (1) F_2 progeny with fer (3) Crossing F_1 with rec	nown by crossing ale parent essive parent	(2) $F_1 \times F_1$ (4) F_2 with recessive particular	arent.	(AIPMT-2007)
39.	In pea, yellow seed col with green seeded plar (1) 9:1	our is dominant over gre it. The ratio of yellow & g (2) 1 : 3	en colour. Heterozygous reen seeded offspring w (3) 3 : 1	s yellow seeded vill be (4) 50 : 50	plant is crossed (AIPMT-2007)
40.	A human male produc person would be (1) Aa Bb	e diallelic sperms in equ (2) Aa BB	(3) AA Bb	(4) AA BB.	genotype of the (AIPMT-2007)
41.	Which one of the follow / linkage? (1) Erythroblastosis foe (2) Down's syndrome – (3) Klinefelter's syndrom (4) Colour blindness –	ving conditions in human talis – X- linked • 44 autosomes + XO ne – 44 autosomes + XX Y-linked	s is correctly matched w	vith its chromoso	mal abnormality (AIPMT-2008)
42.	Point mutation involves (1) Deletion (3) Change in single ba	ise pair	(2) Insertion (4) Duplication		(AIPMT-2009)
43.	The most popularly keep because" O" in it refers (1) No anitgens A and I (2) Other antigens besi (3) Overdominance of t (4) One antibody only -	nown blood grouping is to having: B on RBCs des A and B on RBCs his types on the genes fo either anti- A or anit B o	the ABO grouping. It or A and B types n the RBCs	is named ABO	and not ABC, (AIPMT-2009)
44.	Study the pedigree cha What does it show? (1) Inheritance of a rec	essive sex-linked disease	e like haemophilia		(AIPMT-2009)

(2) Inheritance of a sex-linked inborn error of metabolism like phenylketonuria

- (3) Inheritance of condition like phenylketonuria as an autosomal recessive trait
- (4) The pedigree chart is wrong as this is not possible

45. Which one of the following symbols and its representation, used in human pedigree analysis is correct?

(1) \bigcirc =Unaffected male

(2) \Box =Unaffected female

(3) \blacklozenge =Male affected

(4) =Mating between relatives

(AIPMT-2010)

- 46. Which one of the following cannot be explained on the basis of Mendel's Law of Dominance? (AIPMT-2010) (1) Out of one pair of factors one is dominant and the other recessive (2) Alleles do not show any blending and both the characters recover as such in F₂generation (3) Factors occur in pairs (4) The discrete unit controlling a particular character is called a factor 47. ABO blood groups in humans are controlled by the gene I. It has three alleles -IA,IB and i. Since there are three different alleles, six different genotypes are possible. How many phenotypes can occur. (AIPMT-2010) (1) One (2) Four (3) Two (4) Three 48. Which one of the following conditions correctly describes the manner of determining the sex in the given example (AIPMT-2011) (1) Homozygous sex chromosomes (ZZ) determine female sex in Birds. (2) XO type of sex chromosomes determine male sex in grasshopper (3) XO condition in human as found in Turner Syndrome, determines female sex. (4) Homozygous sex chromosomes (XX) produce male in Drosophila. 49. A person with unknown blood group under ABO system, has suffered much blood loss in an accident and needs immediate blood transfusion. His one friend who has a valid certificate of his own blood type. Offers blood donation without delay. What would have been the type of blood group of the donor friend. (AIPMT-2011) (1) Type B (2) Type AB (3) Type O (4) Type A
- 50. A certain road accident patient with unknown blood group needs immediate blood transfusion. His one doctor friend at once offers his blood. What was the blood group of the donor? (AIPMT Pre. 2012)
 (1) Blood group B (2) Blood group AB (3) Blood group O (4) Blood group A
- 51. A normal- visioned man whose father was colour- blind, marries a woman whose father was also colour- blind. They have their first child as a daughter. What are the chance that this child would be colour- blind?
 (AIPMT Pre. 2012)
 - (1) 100% (2) zero percent (3) 25% (4) 50 %
- 52. Represented below is the inheritance pattern of a certain type of traits in humans. Which one of the following conditions could be an example of this pattern? (AIPMT Mains. 2012)



(1) Phenylketonuria

(2) Sickle cell anaemia(4) Thalassemia

- (3) Haemophilia
- **53.** *Which* one of the following is a wrong statement regarding mutations?

(AIPMT Mains. 2012)

- (1) Deletion and insertion of base pairs cause frame-shift mutations(2) Cancer cells commonly show chromosomal aberrations
- (3) UV and Gamma rays are mutagens
- (4) Change in a single base pair of DNA does not cause mutation

54.	 F₂ generation in a Mendelian cross s 1 : 2 : 1 It represents a case of : (1) Co-dominance (2) Dihybrid cross (3) Monohybrid cross with complete do (4) Monohybrid cross with incomplete of 	howed that both genotypic and minance dominance	l phenotypic ratios are same as (AIPMT Pre. 2012)
55.	A test cross is carried out to: (1) Determine the genotype of a plant a (2) Predict whether two traits are linked (3) Assess the number of alleles of a generation (4) Determine whether two species or w	at F ₂ . d. ene. varieties will breed successfully.	(AIPMT Mains 2012)
56.	The idea of mutations was brought forth (1) Hugo de Vries , who worked on ever (2) Gregor Mendel , who worked on Pis (3) Hardy Weinberg , who worked on a (4) Charles Darwin , who observed a w	h by: ening primrose sum <i>sativum</i> allele frequencies in a population vide variety of organisms during	(AIPMT Mains 2012) sea voyage
57.	If two persons with' AB' blood group ma could be classified as 'A' blood group: of protein electrophoresis reveals pro- individuals. This is an example of: (1) Incomplete dominance (3) Complete dominance	arry and have sufficiently large n 'AB' blood group: 'B'blood group esence of both' A' and 'B' typ (2) Partial dominance (4) Codominance	number of children, these children o in 1:2 :1ratio. Modern technique be proteins in 'AB' blood group (NEET-2013)
58.	If both parents are carrier for thaless chances of pregnancy resulting in an a (1) 50% (2) 25 %	emia, which is an autosomal r ffected child? (3) 100%	recessive disorder, what are the (NEET-2013) (4) no chance
59.	Which Mendelian idea is depicted by a	cross in which the F ₁ generation	resembles both the parents?
	(1) law of dominance(3) co - dominance	(2) inheritance of one (4) incomplete domina	gene (NEET-2013) ance
60.	 Which of the following statements is not (1) The genes are tightly linked (2) The genes show independent associated (3) If the genes are present on the severy meiosis (4) The genes may be on different chromosomers 	ot true of two genes that show 50 ortement same chromosome, they underg omosomes)% recombination frequency? (NEET-2013) go more than one crossovers in
61.	The incorrect statement with regard to (1) It is a recessive disease (2) It is a dominant disease (3) A single protein involved in the clott (4) It is a sex-linked disease	Haemophilia is: ing of blood is affected	(NEET-2013)
62.	Fruit colour in squash is an example of (1) Recessive epistasis (3) Complementary genes	: (2) Dominant epistasis (4) Inhibitory genes	(AIPMT-2014)

63.	Person with blood group (1) both A and B antige (2) both A and B antibo (3) no antigen on RBC a (4) both A and B antige	p AB is considered as ur ns on RBC but no antibo dies in the plasma. and no antibody in the pl ns in the plasma but no a	iversal recipient becaus dies in the plasma. asma antibodies	e he has:	(AIPMT-2014)
64.	A man whose father w father. What percentage (1) 25%	vas colour blind marries e of male children of this (2) 0%	a woman who had a couple will be colour bli (3) 50%	colour blind mot nd? (4) 75%	her and normal (AIPMT-2014)
65.	A human female with Tr (1) has 44 chromosome (2) has one additional X (3) exhibits male charact (4) is able to produce cl	urner's syndrome: es with XO (chromosome. cters hildren with normal husba	and.		(AIPMT-2014)
66.	A man with blood grou groups of their offspring	up 'A' marries a woman js?	with blood group 'B'.	What are all the	e possible blood (AIPMT-2015)
	(1) A., B and AB only	(2) A,B, AB and O	(3) O only	(4) A and B on	lly
67.	The movement of a ger (1) Duplication (3) Crossing over	ne from one linkage grou	p to another is called: (2) Translocation (4) Inversion		(AIPMT-2015)
68.	The chromosomes in w (1) Acrocentric (3) Sub-metacentric	hich centromere is situat	ed close to one end are (2) Telocentric (4) Metacentric	:	(AIPMT-2015)
69.	Multiple alleles are pres (1) At different loci on th (3) On non-sister chrom	sent: ne same chromosome natids	(2) At the same locus of (4) On different chromo	of chromosome osomes	(AIPMT-2015)
70.	Which is the most comorganism? (1) Chromosomal aberr (3) Recombination	mon mechanism of gene ations	etic variation in the popu (2) Genetic drift (4) Transduction	llation of a sexu	ally-reproducing (AIPMT-2015)
71.	Alleles are: (1) true breeding homo: (3) heterozygotes	zygotes	(2) different molecular(4) different phenotype	forms of a gene	(AIPMT-2015)
72.	An abnormal human ba (1) formation of abnorm (2) fusion of two ova an (3) fusion of two sperms (4) formation of abnorm	by with 'XXX' sex chrom nal ova in the mother nd one sperm s and one ovum nal sperms in the father	osomes was born due to):	(AIPMT-2015)
73.	In his classic experimer (1) Pod length (3) Flower position	nts on pea plants, Mende	el did not use (2) Seed shape (4) Seed colour	(Re	e-AIPMT-2015)

PRINCIPLES OF INHERITANCE & VARIATION

(Re-AIPMT-2015)

- 74. Which one of the following is not applicable to RNA?
 - (1) 5' phosphoryl and 3' hydroxyl ends
 - (3) Chargaff's rule

- (2) Heterocyclic nitrogenous bases
- (4) Complementary base pairing
- 75. In the following human pedigree, the filled symbols represent the affected individuals. Identify the type of given pedigree. (Re-AIPMT-2015)



83.	The mechanism that	causes a gene to move	from one linkage group	o to another is called (NEET-2-2016)
	(1) Corossing-over	(2) inversion	(3) duplication	(4) translocation
84.	Which one from those (1) 1856 - 1863	e given below is the peri (2) 1840 - 1850	ods for Mendel's hybrid (3) 1857 - 1869	dization expermients? (NEET-2017) (4) 1870 - 1877
85.	Among the following o	characters, which one w	as not considered by N	Mendel in his experiments on pea? (NEET-2017)
	(1) Stem - Tall or Dwa (3) Seed - Green or Y	arf ellow	(2) Trichomes - Gla (4) Pod - Inflated o	andular or non-glandular r Constricted
86.	The genotypes of a H Among the blood type (1) 3 genotypes ; 3 Pł (3) 4 genotypes ; 3 Pł	usband and Wife are I ^A l es of their children how a nenotypes nenotyeps	^B and I ^A i . amny different genotyp (2) 3 genotypes; 4 (4) 4 genotypes ; 4	(NEET-2017) es and phenotypes are possible phenotypes phenotypes
87.	Thalassemia and sick the correct statemen (1) Both are due to a (2) Both are due to a (3) Thalassemia is du (4) Sickle cell anemia	le cell anemia are cause t. qualitative defect in glob quantitative defect in glo e to less synthesis of glo is due to a quantitative	ed due to a problem in in chain synthesis. obin chain synthesis. obin molecules. problem of globin mole	globin molecule synthesis. Select (NEET-2017)
88.	A disease caused by (1) Down's Syndrome (3) Turner's Syndrom	an autosomal primary n e	on- disjunction is: (2) klinefelter's Syr (4) Sickle Cell Ane	(NEET-2017) ndrome mia
89.	Which of the following a. Dominance b. Co-dominance c. Multiple allele d. Incomplete domina e. Polygenic inheritan (1) b, c and e) characteristics represe nce ce (2) a, c and e	nt 'Inheritance of blood (3) b, d and e	d groups' in humans? (NEET-2018) (4) a, b and c
90.	Which of the following (1) Starch synthesis in (2) T.H. Morgan (3) XO type sex Deter (4) ABO blood groupi	pairs is wrongly match n pea : Mu : Lir mination : Gr ng : Co	ed? Iltiple alleles Ikage asshopper -dominance	(NEET-2018)
91.	In Antirrhinum (Snapo flowers were obtained flowers. Choose the in (1) Law of Segregatio (2) This experiment d	Iragon), a red flower wa I. When pink flower were ncorrect statemes from t n does not apply in this pes not followthe Princip	s crossed with a-white e selfed, the F ₂ genera he following : experiment. ble of Dominance.	flower and in F ₁ generation pink tion showed white, red and pink (NEET-1-2019)

(3) Pink colour in F₁ is due to incomplete dominance. (4) Ratio of F₂ is - $\frac{1}{4}$ (Red) : $\frac{2}{4}$ (Pink) : $\frac{1}{4}$ (White)

92.	What is the genet gynaecomastia, and	ic disorder in which a is sterile?	n indi vidual has an c	overall masculine development, (NEET-1-2019)
	(1) Down's syndrom	Э	(2) Turner's syndrome	. , ,
	(3) Klinefelter's synd	rome	(4) Edward syndrome	
93.	Select the correct se	quence of organs in the	alimentary canal of cockro	each starting from mouth:
				(NEET-1-2019)
	(1) Pharynx \rightarrow Oeso	phagus $ ightarrow$ lleum $ ightarrow$ Crop	ightarrow ightarrow m Gizzard ightarrow m Colon ightarrow m R	lectum
	(2) Pharynx \rightarrow Oeso	phagus $ ightarrow$ Crop $ ightarrow$ Gizza	ard \rightarrow lleum \rightarrow Colon \rightarrow R	lectum
	(3) Pharynx \rightarrow Oeso	phagus $ ightarrow$ Gizzard $ ightarrow$ Cr	$op \to lleum \to Colon \to R$	lectum
	(4) Pharynx→ Oesor	bhagus $ ightarrow$ Gizzard $ ightarrow$ Ileu	$m \to Crop \to Colon \to Re$	ectum
94.	Which of the followin	g can be used as a bio c	control agent in the treatme	ent of plant disease?
				(NEET-1-2019)
	(1) Lactobacillus	(2) Trichoderma	(3) Chlorella	(4) Anabaena
95.	Which of the follow	ing features of genetic	code does allow bacteri	a to produce human insulin by
	recombinant DNA te	chnology ?		(NEET-1-2019)
	(1) Genetic code is s	pecific	(2) Genetic code is no	t ambiguous
	(3) Genetic code is r	edundant	(4) Genetic code is ne	arly universal
96.	Select the incorrect	statement.		(NEET-1-2019)
	(1) Human males ha	ve one of the sex-chrom	osome much shorter than	other.
	(2) Male fruit fly is he	eterogametic.		
	(3) In male grasshop	pers, 50% of sperms hes	s no sex-chromosome.	
	(4) In domesticated f	owls sex of proge depen	ds on the type of sperm ra	ather then egg
97.	What map unit (Cent	imorgan) is adopted in th	ne construction of genetic	maps? (NEET-1-2019)
	(1) A unit of distance	between genes on chro	mosomes, representing 50	0%cross over.
	(2) A unit of distance	between two expressed	genes, representing 10%	cross over.
	(3) A unit of distance	between two expressed	genes, representing 100%	%cross over.
	(4) A unit of distance	between genes on chro	mosomes, representing 19	% cross over.
98.	The frequency of rec	ombination between gen	e present on the same ch	romosome as a measure of the
	distance between ge	nes was explained by:		(NEET-1-2019)
	(1) Sutton Boveri	(2) T.H. Morgan	(3) Gregor J.Mendel	(4) Alfred Sturtevant

99. Match the items of Column - I with Column - II :

	Column-I		Column-II
(a)	XX-XO method of sex determination	(i)	Turner's syndrome
(b)	XX-XY method of sex Determination	(ii)	Female heterogametic
(c)	Karyotype-45	(iii)	Grasshopper
(d)	ZW-ZZ method of Sex Determination	(iv)	Female homogametic

Select the correct option from the following:

(1) (a) - (ii), (b)- (iv), (c)- (i), (d)-(iii)	(2) (a) - (i), (b)- (iv), (c)- (ii), (d)-(iii)
(3) (a) - (iii), (b)- (iv), (c)- (i), (d)-(ii)	(4)(a) - (iv), (b)- (ii), (c)- (i), (d)-(iii)

100. Match the following RNA polymerases with their transcribed products:

	Column-I		Column-II
(a)	RNA polymerase I	(i)	tRNA
(b)	RNA polymerase II	(ii)	rRNA
(c)	RNA polymerase III	(iii)	hnRNA

Select the correct option from the following:

(1) (a)-(i), (b)-(iii), (c)-(ii)	(2) (a)-(i), (b)-(ii), (c)-(iii)
(3) (a)-(ii), (b)-(iii), (c)-(i)	(4) (a)-(iii), (b)-(ii), (c)-(i)

101. In a marriage between male with blood group A and female with blood group B, the progeny had either blood group AB or B. What could be the possible genotype of parents? (NEET-2-2019)
(1) I^A i (Male) ; I^B I^B (Female)
(2) I^A I^A (Male) ; I^B I^B (Female)
(3) I^A I^A (Male) ; I^B i (Female)
(4) I^A i (Male) ; I^B i (Female)

102. In which genetic condition, each cell in the affected person, has three sex chromosomes XXY?

(NEET-2-2019)

(1) Thalassemia	(2) Kleinfelter's Syndrome
(3) Phenylketonuria	(4) Turner's Syndrome

 103. The production of gametes by the parents the formation of zygotes, the F1 and F2 plants can be understood using
 (NEET-2-2019)

 (1) Pie diagram
 (2) A pyramid diagram
 (3) Punnet square
 (4) Wenn diagram

(NEET-2-2019)

(NEET-2-2019)

PART - II : AIIMS QUESTION (PREVIOUS YEARS) 1. (AIIMS-1999) If there is complete linkage in F₂ generation (1) Parental types and recombinants appear in equal ratio (2) Recombinants are less than parental types (3) Recombinants are more than parental types (4) There will be only parental types 2 "Gametes are never hybrid". It is a statement of law of (AIIMS-2000) (2) Segregation (1) Dominance (4) Random fertilisation (3) Independent assortment 3. Mendel could not find recombination and crossing over because (AIIMS-2000) (1) Traits he chose were either present on diferent chromsomes or were far apart (2) Traits chosen by him were not influenced by genes (3) He did not have high power microscope (4) He selected only pure types. 4. Albinism and phenylketonuria are disorders due to (AIIMS-2000) (1) Recessive autosomal genes (2) Dominant atuosomal genes (3) Dominant sex genes (4) Recessive sex genes 5. Strength of linkage is related inversely to distance between. (AIIMS-2001) (1) Genes (2) Chromatids (3) Chromosomes (4) Telomeres 6. Pure line is connected with development of (AIIMS-2002) (1) Homozygosity (2) Heterozygosity (3) Homozygosity and self assortment (4) Heterozygosity and linkage. 7. How many type of gametes are found in F, progeny of cross between AABBCC and aabbcc (AIIMS-2004) (1) 3(3) 27 (2) 8(4) 64Given in the figure is chromosome mutation. It is (AIIMS-2004) 8. ABC DE E G H GΗ

C B

(2) Inversion

(4) Reciprocal translocation

D

(1) Duplication

(3) Deletion

Given ahead is a pedigree chart of a family with five children, It shows the inheritance of attached earlobes as opposed to the free ones. The squares represent the male and circles the female individuals.
 Which one of the following conclusions drawn is correct? (AIIMS-2004)



10. Given below is a pedigree chart with symbols for sex-linked trait in humans. (AIIMS-2005)



12.Given below is a highly simplified representation of the human sex chromosomes from a karyotype. The
genes a and b could be of(AIIMS-2006)



- (1) Colour blindness and body height
- (2) Attached earlobe and Rhesus blood group
- (3) Haemophilia and red green colour blindness
- (4) Phenylketonuria and haemophilia
- **13.** Genes present in the cytoplasm of eukaryotic cells are found in
 - (1) Mitochondria and inherited via egg cytoplasm
 - (2) Lysosomes and peroxisomes
 - (3) Golgi body and ER
 - (4) Plastids and inherited via male gametes.

(AIIMS-2006)

14.	Which represe	ents corre	ct hexaploid n	ature of N	/heat		(AIIMS-2006)
	Monosomic	haploid	Nullisomic	Trisomic			
	(1) 12	28	42	43			
	(2) 7	28	40	42			
	(3) 21	7	42	43			
	(4) 41	21	40	43			
15.	Which pair of f	eatures r	epresents poly	ygenic inh	eritance?		(AIIMS-2006)
	(1) Human eye	e colour a	nd sickle cell a	anaemia			
	(2) Hair pigme	nt of mou	se and tongue	e rolling in	humans		
	(3) ABO blood	groups ir	humans and	flower co	lour of Mirabilis jalapa		
	(4) Human hei	ght and s	kin colour				
16.	Mating of an o	rganism t	o double rece	ssive for c	determining homozygo	osity or heterozygo	sity is called
		oroco	(2) Pook area		(2) Dibybrid aroog	(4) Test gross	(AIIMS-2006)
	(I) Recipiocal	0055	(Z) DACK CIUS	5		(4) Test closs	
17.	Down's syndro	ome is ca	used by an ex	tra copy o	of chromosome number	er 21. What percer	tage of offspring
	produced by a	n affected	mother and a	a normal f	ather would be affecte	d by this disorder	(AIIMS-2007)
	(1) 25%		(2) 50%		(3) 75%	(4) 100%	
18.	Drosophila flie	s with XX	(Y genotype a	are female	es, but human beings	with such genoty	pe are abnormal
	males. It show	s that					(AIIMS-2007)
	(1) Y-chromos	ome is es	sential for sex	determin	ation of drosophila		
	(2) Y-chromos		male determir	ning in Dro	osophila		
	(3) Y-chromos	ome is m	no role in sex	detrminat	in peings ion either in Drosophil	a or human being	,
	(4) 1-01101103	omentas		Gettilliat		a of numari being:	•
19.	In a given plan	it, red col	our (R) of fruit	s is domin	nant over white fruit (r)	; and tallness (T)	is dominant over
	dwarrness (t).	IT a plant	with genotyp	e RRIIIS s in the ne	crossed with a plant	of genotypes rrtt,	(AIIMS-2007)
	(1) 100%		(2) 75%		(3) 50%	(4) 25%	(Annie 2007)
	(1) 10070		(2) 1070			(1) 2070	
20.	Grain colour in	n wheat i	s determined	by three	pairs of polygenes. F	ollowing the cross	AABBCC (dark
	narent?	b cc (ligh	Γ colour), in Γ_2	generatio	on what proportion of	progerty is likely to	(AIIMS-2007)
	(1) One third				(2) Half		(AIIIIO-2007)
	(3) Less than f	5 percent			(4) None of the abov	/e	
	(0) _000				(.)		
21.	A normal wom	an whose	e father was co	olour blind	l, is married to a norm	al man. The sons v	would be
	(4) 750(الم الأرب ما	(0) 500(asla				(AIIMS-2008)
	(1) 75% colour	DIING	(2) 50% COIO	urbiina	(3) All colourblind	(4) All normal	
22.	Which of the fo	ollowing a	occurs due to r	monosom	y of sex chromosome'	r	
						(
	(1) Down's sy	ndrome			(2) Turners's syndro	ome	
	(1) Down's sy(3) Haemophi	ndrome lia			(2) Turners's syndro(4) Sickle cell anae	? ome mia	
23.	(1) Down's sy(3) HaemophiThree children	ndrome lia in a fam	ily have blood	l types O,	(2) Turners's syndre(4) Sickle cell anaeAB and B respectivel	? ome mia ly. What are the go	enotypes of their
23.	 (1) Down's sy (3) Haemophi Three children parents? (1) IA: UB: 	ndrome lia i in a fam	ily have blood	l types O,	 (2) Turners's syndrom (4) Sickle cell anae AB and B respectivel 	y. What are the g	enotypes of their (AIIMS-2013)

PRINCIPLES OF INHERITANCE & VARIATION

0E	These and these	nonce has Developed		an a and his 200/ hand a is 20	20/ a.a.d					
	(1) 50%	(2) 25%	(3) 100%	(4) no chance						
	pregnancy resu	(AIIMS	3-2014)							
24.	If both parents are carriers for thalassemia, is an autosomal recessive disorder, what chances of									

25.There are three genes a, b, c. Percentage of crossing over between a and b is 20%, band c is 28% and
a and c is 8%. What is the sequence of genes on chromosome?(AIIMS-2015)(1) b,a,c(2) a,b,c(3) a,c,b(4) None of these

26. The experiment shown in the given figure has been carried out by Morgan to show the phenomenon of linkage and recombination. If in cross I, genes are tightly linked and in cross II, genes are loosely linked then what will be the percentage of recombinants produced in cross I and cross II respectively?

(AIIMS-2016)



PRINCIPLES OF INHERITANCE & VARIATION

- 27. In pea plants, green pod colour is dominant over yellow pods. 1000 seeds taken from a pea plant on germination produces 760 green pod and 240 yellow pod plants. The parental genotype and phenotype of the seed plant are (AIIMS-2017)
 (1) heterozygous and yellow (2) heterozygous and green
 - (3) homozygous and yellow (4) homozygous and green

28._ A man whose father was colourblind marries a woman, who had a colourblind mother and normal father. What percentage of male children of this couple will be colourblind? (AIIMS-2017)

- (1) 25% (2) 0% (3) 50% (4) 75%
- **29.** Which of the following is true for given diagram

(AIIMS-2018-I)





(1) $A \rightarrow$ Autosomal dominant

(2) $B \rightarrow Glutamic acid$

(3) $B \rightarrow Valine$

(4) It is caused due to bacteria

(2) Loss of any chromosome

30. Turner syndrome is due to

(1) Loss of X chromosome - 44 + XO

(3) It is due to trisomy in 21st pair (4) None

31. Which of the following statement confirm the law of dominance

(AIIMS-2018-II)

(AIIMS-2018-I)

- (1) 3:1 ratio in F2 generation
- (2) It is the conclusion of a dihybrid cross
- (3) Alleles do not show any blending and both characters recovered as such in F2 generation
- (4) Alleles of a pair segregate from each other such that gamete receives only one of the two factors

32.	The ratio of complement	(AIIMS-2018-III)						
	(1) 12 : 3 : 1	(2) 9 : 7	(3) 9 : 3 : 4	(4) 9 : 6 : 1				
33.	Haemophilia is			(AIIMS-2018-III)				
	(1) Sex linked		(2) Sex limited					
	(3) Autosomal recessive	e	(4) Autosomal dominant					
34.	Which of the following o	chains of haemoglobin is	affected in thalassaemia	(AIIMS-2018-III)				
	(1) Only β chain		(2) Only α chain					
	(3) Both α and β chain		(4) γ chain					
35.	Heterozygous tall is cro	ssed with recessive pare	ent .What will the percent	age of homozygous recessive				
				(AIIMS-2018-IV)				
	(1) 75 %	(2) 25 %	(3) 100 %	(4) 50 %				
36.	In <i>Mirablilis jalapa,</i> red	flowered plant is cross	ed with white flowered p	plant. What will the phenotypic				
	ratio in F2 generation?			(AIIMS-2018-IV)				
	(1) 1 : 1 : 1	(2) 1 : 2 : 1	(3) 3 : 1	(4) 1 : 1				

Answers

E

	EXERCISE - 1												
SEC	FION - A	L .											
1.	(3)	2.	(3)	3.	(2)	4.	(1)	5.	(2)	6.	(4)	7.	(3)
8.	(4)	9.	(2)	10.	(4)	11.	(1)	12.	(1)	13.	(4)	14.	(1)
15.	(4)	16.	(1)	17.	(2)	18.	(1)	19.	(3)	20.	(2)	21.	(3)
22.	(1)	23.	(2)	24.	(4)	25.	(4)	26.	(3)	27.	(1)	28.	(2)
29.	(2)	30.	(1)	31.	(4)	32.	(1)						
SEC	FION - B	5											
1.	(3)	2.	(4)	3.	(3)	4.	(2)	5.	(3)	6.	(2)	7.	(4)
8.	(2)	9.	(2)	10.	(3)	11.	(1)	12.	(1)	13.	(1)	14.	(4)
15.	(3)	16.	(2)	17.	(3)	18.	(1)	19.	(4)	20.	(3)	21.	(2)
22.	(3)	23.	(3)	24.	(2)	25.	(1)	26.	(3)	27.	(1)	28.	(4)
29.	(3)	30.	(4)	31.	(2)	32.	(1)	33.	(4)	34.	(4)	35.	(4)
36.	(3)	37.	(1)	38.	(3)	39.	(1)						
SEC	LION - C	;											
1.	(2)	2.	(1)	3.	(4)	4.	(3)	5.	(1)	6.	(3)	7.	(4)
8.	(2)	9.	(1)	10.	(4)	11.	(1)	12.	(2)	13.	(4)	14.	(3)
15.	(3)	16.	(2)	17.	(4)	18.	(3)	19.	(3)	20.	(2)	21.	(1)

	Miscellaneous Questions												
1.	(1)	2.	(4)	3.	(1)	4.	(4)	5.	(4)	6.	(2)	7.	(3)
8.	(4)	9.	(2)	10.	(2)	11.	(2)	12.	(1)	13.	(1)	14.	(2)
15.	(1)	16.	(4)	17.	(2)	18.	(4)	19.	(1)	20.	(2)	21.	(1)
22.	(3)	23.	(4)	24.	(1)	25.	(1)	26.	(3)	27.	(4)	28.	(4)
29.	(3)	30.	(1)	31.	(1)	32.	(1)	33.	(4)	34.	(3)	35.	(2)
36.	(4)	37.	(3)	38.	(3)	39.	(4)	40.	(4)	41.	(4)	42.	(3)
43.	(1)	44.	(2)	45.	(1)	46.	(3)	47.	(2)	48.	(2)	49.	(2)
50.	(2)	51.	(4)	52.	(3)	53.	(4)	54.	(4)	55.	(1)	56 .	(4)
57.	(4)	58.	(3)	59.	(1)	60.	(1)	61.	(2)	62.	(2)	63.	(1)
64.	(3)	65.	(1)	66.	(3)	67.	(3)	68.	(3)	69.	(2)	70.	(1)
71.	(1)	72.	(2)	73.	(4)	74.	(3)	75.	(4)	76.	(1)	77.	(3)
78.	(1)	79.	(2)	80.	(1)	81.	(2)	82.	(2)	83.	(4)	84.	(3)
85.	(2)	86.	(2)	87.	(1)	88.	(1)						

	EXERCISE - 2												
1.	(1)	2.	(1)	3.	(2)	4.	(2)	5.	(3)	6.	(2)	7.	(3)
8.	(2)	9.	(4)	10.	(3)	11.	(3)	12.	(1)				
						EXER	CISE - :	3					
						PA	RT- I						
1.	(3)	2.	(1)	3.	(1)	4.	(3)	5.	(1)	6.	(4)	7.	(4)
8.	(3)	9.	(2)	10.	(1)	11.	(4)	12.	(2)	13.	(4)	14.	(3)
15.	(3)	16.	(2)	17.	(1)	18.	(2)	19.	(1)	20.	(4)	21.	(2)
22.	(2)	23.	(2)	24.	(4)	25.	(3)	26.	(1)	27.	(2)	28.	(4)
29.	(4)	30.	(4)	31.	(2)	32.	(3)	33.	(3)	34.	(4)	35.	(3)
36.	(2)	37.	(3)	38.	(3)	39.	(4)	40.	(1)	41.	(3)	42.	(3)
43.	(1)	44.	(3)	45.	(4)	46.	(2)	47.	(2)	48.	(2)	49.	(3)
50.	(3)	51.	(2)	52.	(3)	53.	(4)	54.	(4)	55.	(1)	56.	(1)
57.	(4)	58.	(2)	59.	(3)	60.	(1)	61.	(2)	62.	(2)	63.	(1)
64.	(3)	65.	(1)	66.	(2)	67.	(2)	68.	(1)	69.	(2)	70.	(3)
71.	(2)	72.	(1)	73.	(1)	74.	(3)	75.	(2)	76.	(3)	77.	(3)
78.	(4)	79.	(4)	80.	(4)	81.	(3)	82.	(3)	83.	(4)	84.	(1)
85.	(2)	86.	(3)	87.	(3)	88.	(1)	89.	(4)	90.	(1)	91.	(1)
92.	(3)	93.	(2)	94.	(2)	95.	(4)	96.	(4)	97.	(4)	98.	(4)
99.	(3)	100.	(3)	101.	(1)	102.	(2)	103.	(3)				
						ΡΑ	RT- II						
1.	(4)	2	(2)	3.	(1)	4.	(1)	5.	(1)	6.	(3)	7.	(2)
8.	(2)	9.	(2)	10.	(4)	11.	(3)	12.	(3)	13.	(1)	14.	(4)
15.	(4)	16.	(4)	17.	(2)	18.	(3)	19.	(3)	20.	(3)	21.	(2)
22.	(2)	23.	(1)	24.	(2)	25.	(1)	26.	(2)	27.	(2)	28.	(3)
29	(3)	30.	(1)	31.	(1)	32	(2)	33.	(1)	34	(3)	35.	(4)
36.	(2)		(')		(')		(-)		(')		(-)		(')