

PART : BIOLOGY

Section - A (Biology : Botany)

Section-I

Single Choice Type

This section contains **35 Single choice questions**. Each question has 4 choices (1), (2), (3) and (4) for its answer, out of which **Only One** is correct.

कुल 35 एकविकल्पीय प्रश्न हैं। प्रत्येक प्रश्न के चार विकल्प (1), (2), (3) और (4) दिए गए हैं, जिनमें से केवल एक सही है।

101. Amensalism can be represented as :

- | | |
|-----------------------------------|---------------------------------------|
| (1) Species A (+) ; Species B (+) | (2) Species A (-) ; Species B (-) |
| (3) Species A (+) ; Species B (0) | (4) Species A (-) ; Species B(0) |
- वृद्धि के लिए हानि पहुंचाने वाला परस्पर संबंध
- | | |
|-------------------|-----------------------|
| (1) A (+) ; B (+) | (2) A (-) ; B (-) |
| (3) A (+) ; B (0) | (4) A (-) ; B(0) |

Ans. (4)

102. In the equation $GPP - R = NPP$ R represents:

- | | |
|------------------------|------------------------|
| (1) Retardation factor | (2) Environment factor |
| (3) Respiration losses | (4) Radiant energy |
- प्रकाश संश्लेषण - श्वसन = जल संश्लेषण
- | | |
|-----------------|-------------------|
| (1) रुद्धि कारक | (2) पर्यावरण कारक |
| (3) श्वसन क्षति | (4) विकिरण ऊर्जा |

Ans. (3)

103. The plant hormone used to destroy weeds in a field is:

- | | | | |
|---------|-----------|---------|---------|
| (1) NAA | (2) 2,4-D | (3) IBA | (4) IAA |
|---------|-----------|---------|---------|
- क्षेत्र में जड़ों को नष्ट करने के लिए उपयोग किया जाने वाला पौधे का हार्मोन
- | | | | |
|------------|------------|--------------|------------|
| (1) ,u , , | (2) 2,4-Mh | (3) vkbZ h , | (4) vkbZ , |
|------------|------------|--------------|------------|

Ans. (2)

104. Which of the following is an incorrect statement?

- (1) Microbodies are present both in plant and animal cells.
- (2) The perinuclear space forms a barrier between the materials present inside the nucleus and that of the cytoplasm.
- (3) Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm.
- (4) Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles.

fuEufyf[kr esds dksu k dFku xyr gS

(1) lw{edk;} i knikavkSj tUrqvankasukassail;stkrh gS

(2) ifjdlnzd h vodk"j] dlnzd dsvUnj mifLFkr inkFkkZvkSj dksf'kdnzO; esa mifLFkr inkFkkZds hp vojksk dk dke djrk gS

(3) dlnzd fNnz] dsUnzd vkSj dksf'kdnzO; ds hp nksukafn"kkvksa i zksvhu vkSj ,u , v qkadsfy, ,d iFk dh Hkkfr dk;Zdjrs gS

(4) ifjiDo pkyuh ufydk rRoksa ,d Li"V dlnzd vkSj k/kkj k dksf'kdnzO; mi;ksx gksrsgS

Ans. (4)

105. Which of the following is not an application of PCR (polymerase Chain Reaction) ?

- (1) Gene amplification
- (2) Purification of isolated protein
- (3) Detection of gene mutation
- (4) Molecular diagnosis

fuEufyf[kr esds dksu ,d i h lh vkj %ikfyejst Ja[kyk vfHkfØ;k% dk ,d vuqiz;ksx ugh gS

(1) thu i zo/kZu

(2) i'Fkd fd;s;si zksvhu dk 'kqf)dj k

(3) thu mRifjorZu dk irk yxkuk

(4) vk kfod funku

Ans. (2)

106. Which of the following are not secondary metabolite in plants?

- (1) Amino acids, glucose
- (2) Vinblastin, curcumin
- (3) Rubber, gums
- (4) Morphine, codeine

fuEufyf[kr esds dksu i knikasa f}rh;d mikip;t ughagS

(1) ,ehuksa vEy Xywdk

(2) fouCysLVhu] djD;wfeu

(3) j j] xka

(4) ekQhZu] dksMhu

Ans. (1)

107. Match List - I with List - II.

List - I		List - II	
(a)	Cristae	(i)	Primary constriction in chromosome
(b)	Thylakoids	(ii)	Disc-shaped sacs in Golgi apparatus
(c)	Centromere	(iii)	Infoldings in mitochondria
(d)	Cisternae	(iv)	Flattened membranous sacs in stroma of plastids

Match List - I with List - II.

List - I		List - II	
(a)	Chloroplast	(i)	Primary constriction in chromosome
(b)	Centromere	(ii)	Disc-shaped sacs in Golgi apparatus
(c)	Thylakoids	(iii)	Infoldings in mitochondria
(d)	Cisternae	(iv)	Flattened membranous sacs in stroma of plastids

Choose the correct answer from the options given below.

Options: (a) Cristae, (b) Thylakoids, (c) Centromere, (d) Cisternae

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

Ans.

(2)

108. DNA strands on a gel stained with ethidium bromide when viewed under UV radiation, appear

- (1) Bright orange bands (2) Dark red bands
(3) Bright blue bands (4) Yellow bands

Options: (a) Bright orange bands, (b) Dark red bands, (c) Bright blue bands, (d) Yellow bands

(1)	pedhyh ukjñ ifv~;ka	(2)	xgjh yky ifv~;ka
(3)	pedhyh uhyh ifv~;ka	(4)	ihyh ifv~;ka

Ans.

(1)

109. The production of gametes by the parents, formation of zygotes, the F₁ and F₂ plants, can be understood from a diagram called:

- (1) Punch square (2) Punnett square (3) Net square (4) Bullet square

Options: (a) Punch square, (b) Punnett square, (c) Net square, (d) Bullet square

(1)	iap oxZ	(2)	iuv oxZ	(3)	usV oxZ	(4)	qysV oxZ
-----	---------	-----	---------	-----	---------	-----	----------

Ans.

(2)

110. The first stable product of CO₂ fixation in sorghum is

- (1) Oxaloacetic acid (2) Succinic acid
(3) Phosphoglyceric acid (4) Pyruvic acid

lkSj/ke esa CO₂ fLFkjhdj k esa igyk LFkk;h mRi kn D;k gSA

- (1) vkDtsyksf lfVd vEy (2) IDlfud vEy
(3) QkLQksXyh lfjd vEy (4) ikb : fod vEy

Ans. (1)

111. In spite of interspecific competition in nature, which mechanism the competing species might have evolved for their survival?

- (1) Competitive release (2) Mutualism
(3) Predation (4) Resource partitioning

izØfr esavarjtkrh; iZLi/kkZs kotwn] izfrLi/kkZjus okyh tfr;ksa viuh mÜkjthfodk dsfy, dkSu lh fof/k fodk fd;k gksxk\

- (1) Li/kkZueqZDr (2) lgksidkfjrk
(3) Hkfk k (4) lalk/ku foHkk tu

Ans. (4)

112. Which of the following statements is not correct?

- (1) Pyramid of biomass in sea is generally upright.
(2) Pyramid of energy is always upright.
(3) Pyramid of numbers in a grassland ecosystem is upright.
(4) Pyramid of biomass in sea is generally inverted.

fuEu fyf[k esa dkSu lk dFku lg h gS

- (1) leqnz esa tsj dk fjsM lk/kkj kr;k lh/kk gsrk gS
(2) ÅtkZ dk fjsfeM lnSo lh/kk gsrk gSA
(3) ,d ?kk lk Hkwfe ifjRU=k esa la;k dk fjsfeM lh/kk gsrk gS
(4) leqnz esa tSoHkkj dk fjsM lk/kkj kr;k mYV/k gsrk gSA

Ans. (1)

113. The site of perception of light in plants during photoperiodism is :

- (1) Stem (2) Axillary bud (3) Leaf (4) Shoot apex

izdk'kd fydruk dsnkSjku iknisa izdk'k dsvoxeu dk LFkku dkSu lk gS

- (1) ruk (2) d{kh; dfydk (3) iÜkh (4) izjks 'kh" kZ

Ans. (3)

114. Match List – I with List - II.

lwph – I with lwph - II.

List - I		List - II	
(a)	Lenticels	(i)	Phellogen
(b)	Cork cambium	(ii)	Suberin deposition
(c)	Secondary cortex	(iii)	Exchange of gases
(d)	Cork	(iv)	Phelloderm

Choose the correct answer from the options given below.

uhps fn;sx;sfodYika sa lgh mUkj pqfu;sa

lwph - I		lwph - II	
(a)	Okkr jAz	(i)	dkxtu
(b)	dkdZSfEa;e	(ii)	lq sifu fu{ksr k
(c)	f}rh;d oYdqV	(iii)	xSlkadk vknku&iznku
(d)	dkx	(iv)	dkx&vLrj

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

Ans. (1)

115. Match List - I with List - II.

lwph – I with lwph - II.

List - I		List - II	
(a)	Protoplast fusion	(i)	Totipotency
(b)	Plant tissue culture	(ii)	Pomato
(c)	Meristem culture	(iii)	Somaclones
(d)	Micropropagation	(iv)	Virus free plants

Choose the correct answer from the options given below.

uhps fn;sx;sfodYika sa lslgh mUkj pqfu;sa

List - I		List - II	
(a)	tthonzO;	(i)	ivZ'kDrrk
(b)	ikni mUkd lao/kZu	(ii)	iksesVks
(c)	esfjLVse lao/kZu	(iii)	lksekDyksu
(d)	lw{eizo/kZu	(iv)	fo"kkokqDr ikni

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

Ans. (1)

116. Match List - I with List - II.
lwph – I with lwph - II.

List - I		List - II	
(a)	Cohesion	(i)	More attraction in liquid phase
(b)	Adhesion	(ii)	Mutual attraction among water molecules
(c)	Surface tension	(iii)	Water loss in liquid phase
(d)	Guttation	(iv)	Attraction towards polar surfaces

Choose the correct answer from the options given below.

uhps fn;sx;sfodYikaasa lslgh mUkj pqfu;sa

lwph - I		lwph - II	
(a)	lltu	(i)	nzo voLFkk esa vis(kkNr vf/kd vkd"kdZ
(b)	vklatu	(ii)	ty v"kvkadsrhp ijkLifjd vkd"kdZ
(c)	i"B ru ko	(iii)	nzo voLFkk esa ty gkfu
(d)	fUnq L=kko	(iv)	/kzoh; i"Bksadh vksj vkd"kdZ

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

Ans.

(4)

117. When gene targetting involving gene amplification is attempted in an individual's tissue to treat disease, it is known as:

- (1) Gene therapy (2) Molecular diagnosis
(3) Safety testing (4) Biopiracy

jsx dksBd djs dsfy,] tu izo/kZu djrs gq ,d thu dh y{; fd;k x;k gS ;g iD;k D;k dgysrh gS

- (1) thu fpdRlk (2) vk kfod funku
(3) lqj{kk ij{h k (4) k;kskbjslh

Ans.

(1)

118. Diadelphous stamens are found in :

- (1) Citrus (2) Pea (3) China rose and citrus(4) China rose

f}la/kh iqlsj fdles ik;stksr gS

- (1) uha w (2) eVj (3) pkbuk jkst vksuh w (4) pkbuk jkst

Ans.

(2)

119. A typical angiosperm embryo sac at maturity is:

- (1) 7-nucleate and 8-celled (2) 7-nucleate and 7-celled
(3) 8-nucleate and 8-celled (4) 8-nucleate and 7-celled

ifjiDo voLFkk esa ,d ii: ih vko`r htszdk fuEufyf[kr esa lsdksulk gksrk gS

- (1) 7-dlndh; vksj 8-dksfkdh; (2) 7-dlndh; vksj 7-dksfkdh;
(3) 8-dlndh; vksj 8-dksfkdh; (4) 8-dlndh; vksj 7-dksfkdh;

Ans.

(4)

120. Match List – I with List – II

lwph – I dskFk lwph - II.

List – I		List – I	
(a)	Cells with active division capacity	(i)	Vascular tissues
(b)	Tissue having all cells similar and structure and function	(ii)	Meristematic tissue
(c)	Tissue having different types of cells	(iii)	Sclereids
(d)	Dead cells with highly thickened walls and narrow lumen	(iv)	Simple tissue

Select the correct answer from the option given below.

uhps fn;sx;sfodYika: lslgh mUkj pqfu;sa

lwph – I		lwph – I	
(a)	IfØ; dskdk fohkk tu dh {kerk okyh dskdk; a	(i)	Lakogu AUkd
(b)	,d AUkd ftesa IHkh dskdk; alajpuk vkSj dk; Zih n'fV ls leku gSA	(ii)	fohkt;ksrd
(c)	fohkkUu izkj dh dskdkvksyk AUkd	(iii)	fLdfyfjM
(d)	vR;f/kd eksVh fkhUk ,oadjh xqfgdk okyh e`r dskdk;s	(iv)	Ljy AUkd

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

Ans.

(4)

121. The term used for transfer of pollen grains from anthers of one plant to stigma of a different plant which, during pollination, brings genetically different types of pollen grains to stigma, is :

- (1) Geitonogamy (2) Chasmogamy (3) Cleistogamy (4) Xenogamy
 ,d kni dsijxdk d ,d fhké iin ds ofrZdkx ij LFkkukUrj k dsfy, dkSu k 'kCn iz;qDr gksrk gSA ftesa
 ijxd k dsnksjku ofrZdkx ij vkuqokafkd : i esa fkhUu izdkj dsijxd k yk;stks gS\
 (1) Itkriq"ih ijxd k (2) mUehy ijx kh (3) vuqLehY; ijx kh (4) ijfu"kspu

Ans.

(4)

122. Plants follow different pathways in response to environment or phases of life to form different kinds of structures. This ability is called:

- (1) Flexibility (2) Plasticity (3) Maturity (4) Elasticity
 i;kZj k dsizR;qUk esa kni fohkkUu iFkksdk vuqLj k djrs gS; k fohkkUu izdkj dh lajpukvksd fuesZ k dsfy,
 fohkkUu voLFkksdk vuqLj k djrs gSA bl {kerk dskD;k dgk tkrk gS
 (1) uE;rk (2) lq?kV;rk (3) ifjiDork (4) izR;kLFkrk

Ans.

(4)

123. Which of the following algae contains mannitol as reserve food material?

- (1) Gracillaria (2) volvox (3) Ulothrix (4) Ectocarpus
 fuEufyf[kr esalsdkSu 'kSy esa lap;h [kk ds: i esa eSuhVky gksrk gSA
 (1) xzkflysfj;k (2) okll'ookDI (3) ;wyksfFkzDI (4) ,DVksdk iZI

Ans.

(4)

124. Complete the flow chart on central dogma.

- DNA (b) mRNA (c) (d)
- (a)
- (1) (a)-Translation; (b)-Replication;
(c)-Transcription; (d)-Transduction
 - (2) (a)-Replication; (b)-Transcription;
(c)-Translation; (d)-Protein
 - (3) (a)-Transduction; (b)-Translation;
(c)-Replication; (d)-Protein
 - (4) (a)-Replication; (b)-Transcription;
(c)-Transduction; (d)-Protein

ewy fl}kUr %lsUV^y MksXek% dk iWzokg fp=k gS

- DNA (b) mRNA (c) (d)
- (a)
- (1) (a)- : iKU rj k; (b)- izfrÑfrdj k
(c)- vuqys[ku; (d)- iijØe k
 - (2) (a)- izfrÑfrdj k; (b)- vuqys[ku;
(c)- : iKU rj k; (d)- iZVhu
 - (3) (a)- izfrÑfrdj k; (b)- : iKU rj k;
(c)- : iKU rj k; (d)- iZVhu
 - (4) (a)- izfrÑfrdj k; (b)- vuqys[ku;
(c)- iijØe k; (d)- iZVhu

Ans. (2)

125. Which the following plants is monoecious ?

- | | |
|----------------------|---------------------------|
| (1) Chara | (2) Marchantia polymorpha |
| (3) Cycas circinalis | (4) Carica papaya |
- fuEufyf[kr esds dksu l k i kni mHk;fyxakJ;h gS
- | | |
|---------------------|---------------------|
| (1) dkjk | (2) ekdZ;k ikyekQkZ |
| (3) lkbd l flZuay l | (4) dSfdk iik;k |

Ans. (1)

126. Mutation in plant cells can be induced by:

- | | | | |
|-------------------|----------------|------------|-------------|
| (A) Infrared rays | (2) Gamma rays | (3) Zeatin | (4) Kinetin |
|-------------------|----------------|------------|-------------|
- i kni dksfkdksa fdlds}jk mRifjorZu ijr fd;k tk ldrk gS
- | | | | |
|------------------|-----------------|------------|------------|
| (A) vojDr fdj ka | (2) xkek fdj ka | (3) ft,fVu | (4) dkbfVu |
|------------------|-----------------|------------|------------|

Ans. (2)

127. Which of the following is a correct sequence of steps' a PCR (Polymerase Chain Reaction) ?

- (1) Denaturation, Extension, Annealing (2) Extension, Denaturation, Annealing
(3) Annealing, Denaturation, Extension (4) Denaturation, Annealing, Extension

fuEufyf[kr esds] ikWfyejst Jkxk vfhkø;k (ih lh vkj) dspj kkd dksu lk lgh vuqøe gS

- (1) fuf"Ø;dj k, izlkj, rkikuq'khy (2) izlkj, fuf"Ø;dj k, rkikuq'khy
(3) rkikuq'khy, fuf"Ø;dj k, ikkj (4) fuf"Ø;dj k, rkikuq'khy, ikkj

Ans. (4)

128. Genera like Selaginella and Salvinia produce two kinds of spores. Such plants are known as :

- (1) Heterosorus (2) Homosporous (3) Heterosporous (4) Homosorus

dh oak tssd flyst usyk vkSj lkfyofu;k] nksizdkj ds htk kqnRiknr djrs gS, isinikad; dgk tkrk gS

- (1) gsVsjkskjl (2) le htk kqd (3) fo"ke htk kqd (4) gkskskjl

Ans. (3)

129. Which of the following stages of meiosis involves division of centromere?

- (1) Metaphase I (2) Anaphase II (3) Telophase II (4) Metaphase I

fuEufyf[kr esds v/kZlw=kh foHkk tu dh fd lk volFkk esa xq klw=kf Unw dk foHkk tu gksrk gS

- (1) e/;oLFkk II (2) i'pkoLFkk II (3) vdkoLFkk II (4) e/;oLFkk I

Ans. (2)

130. During the purification process for recombinant DNA technology, addition of chilled ethanol

- (1) DNA (2) Histones (3) Polysaccharides (4) RNA

iqu;kzt Mh ,u ,] isksfxdh dsfy, 'kqjd k iø;k esa 'khr bFksukWy dksfeykus ls;g fdls vo{kstir djrk gS

- (1) Mh ,u , (2) fgLVksu (3) ikWfyISdsjkbM (4) vkj ,u ,

Ans. (1)

131. The factor that leads to Founder effect in a population is :-

- (1) Genetic recombination (2) Mutation
(3) Genetic drift (4) Natural selection

fuEufyf[kr esds dksu lk dkjd ,d lefV QkmaMj iHkko mRie djrk gS

- (1) vkuqof"kd iqu;kztu (2) mRifjorZu
(3) vkuqof"kd fopyu (4) izkNfrd 'kSoky

Ans. (3)

132. Which of the following algae produce Carrageen?

- (1) Brown algae. (2) Red algae
(3) Blue-green algae (4) Green algae

fuEufyf[kr esds dksu ls'kSoky dSjxhu mRie djrs gS

- (1) Hkwijs 'kSoky (2) yky 'kSoky
(3) uhy&gfjr 'kSoky (4) gfjr 'kSoky

Ans. (2)

133. Gemmae are present in:

- (1) Pteridophytes (2) Some Gymnosperms
(3) Some Liverworts (4) Mosses

tseh fdesa ik;stkrsgS

- (1) Vs f j M k Q k b V esa (2) d q N v u k o ` r h t h ; k a s a
(3) d q N f y o j o V e s a (4) e k W I e s a

Ans. (3)

134. The amount of nutrients, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time, is referred as :

- (1) Climax community (2) Standing state (3) Standing crop (4) Climax

d k Z u j u k b V k s t u j Q k L Q k s j l v k s d s Y ` k ; e t S l i k s ` k k a d h e ` n k e s a e k = k j f d l h f n ; s x ; s l e ; e s a d S l s l a n f h k Z r d h t k r h g S a

- (1) p j e l e q n k ; (2) L F k k ; h v o L F k k (3) L F k k ; h Q l y (4) p j e v o L F k k

Ans. (2)

135. When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as :

- (1) Telocentric (2) Sub- metacentric (3) Acrocentric (4) Metacentric

t x q k l w = k f U n q j x q k l w = k d h n k s j k j H k q t k v k a d s e / ; e s a f L F k r g k s r k g S r ; g D ; k d g y k r k g S a

- (1) v a r d s l n z h (2) m i e / ; d s l n z h (3) v x z f U n q d (4) e / ; d s l n z h

Ans. (4)

Section-II

Single Choice Type

This section contains **15 Single choice questions**. Each question has 4 choices (1), (2), (3) and (4) for its answer, out of which **Only One** is correct.

b l [k M e s a 15 , d y f o d Y i i h i z ` u g S i z R ; d i z ` u d s 4 f o d Y i (1), (2), (3) r F k k (4) g p f t u e s a s f l Q Z , d l g h g S a

136. DNA fingerprinting involves identifying differences in some specific regions in DNA sequence, called as:

- (1) Repetitive DNA (2) Single nucleotides (3) Polymorphic DNA (4) Satellite DNA

D N A v a x p h N k i h e s a D N A v u q O e e s a d q N f o f ` k " V L F k k u k s a e s a f H K U u r k v k a d h i g p k u d h t k r h g S o f ` k " V L F k k u k s a d k s D ; k d g k t k r k g S a

- (1) i q u j k o ` f U k D N A (2) , d y U ; w f D y ; k s V k b M (3) g q : i h ; D N A (4) v u q " k a x h D N A

Ans. (1)

137. Plasmid pBR322 has *PasI* restriction enzyme site within *gen amp^R* that confers ampicillin resistance. If this enzyme is used for inserting a gene for β -galactoside production and the recombinant plasmid is inserted in an *E. coli* strain

- (1) the transformed cells will have the ability to resist ampicillin as well as produce β -galactoside.
- (2) it will lead to lysis of host cell.
- (3) it will be able to produce a novel protein with dual ability.
- (4) it will not be able to confer ampicillin resistance to the host cell

lySfTeM pBR322 eat^{hu} amp^R dsVUnj *PasI* izfr alku ,Utkbe gSts,Eihflyhu izfrjksk n'kkZrk gS;fn bI ,Utkbe dks hV&xSysDVkslkbM mRiknu dsfy, ,d t^{hu} ds fyf, fuosf'kr fd;k tkrk gS;Si qu;kzt lySfTeM dks b-dksyh LV^asu esa fuosf'kr fd;k tkrk gS

- (1) : i karfjr dksf'kd vkasa ,Eihflyhu izfrjksk dh {kerk gksh vS l kFk gh hV&xSysDVkslkbM mRiknu djsxA
- (2) blesa iks'kh dksf'kd es y;u gkst;sxk
- (3) blesa jSr {kerk dskFk u;si zshu mRiknu dh {kerk gkshA
- (4) ;g iks'kh dksf'kd dks,Eihflyhu izfrjksk ugha uk ik;sxkA

Ans.

- (4)

138. Match Column - I with Column - II.

LrEHk- I dks LrEHk -II ls lqesf'kr dhft,A

Column-I		Column-II	
(a)	Nitrococcus	(i)	Denitrification
(b)	Rhizobium	(ii)	Conversion of ammonia to nitrite
(c)	Thiobacillus	(iii)	Conversion of nitrite to nitrate
(d)	Nitrobacter	(iv)	Conversion of atmospheric nitrogen to ammonia

Choose the correct answer from options given below.

uhps fn;sx;sfodYika sa lslgh mUkj pqfu,A

LrEHk-I		LrEHk-II	
(a)	ukbV ^a ksdks l	(i)	foukbV ^a hdj tk
(b)	jb tk;e	(ii)	veksfu;k dk ukbV ^a bV esai fforZu
(c)	fFk; kSih yl	(iii)	ukbV ^a bV dk ukbV ^a sV esa ifforZu
(d)	ukbV ^a SDV j	(iv)	ok; qeaMyh; ukbV ^a stu dk veksf'u;k esa ifforZu

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

Ans.

- (4)

139. Match List- I with List - II.

lwph - I dkslwph- II dsl kFk l qsfyr dhft,A

List- I		List- II	
(a)	Protein	(i)	C=C double bonds
(b)	Unsaturated fatty acid	(ii)	Phosphodiester bonds
(c)	Nucleic acid	(iii)	Glycosidic bonds
(d)	Polysaccharide	(iv)	Peptide bonds

lwph - I		lwph - II	
(a)	izks/hu	(i)	C=C f}dU/k
(b)	vlar'lr o h; vEy	(ii)	QkLQksMkb, LVj aU/k
(c)	U;wDyh d vEy	(iii)	Xykb dkslkb fMd aU/k
(d)	ikWvhl SdjbM	(iv)	islVkbM aU/k

Choose the correct answer from the options given below.

uhps fn;sx; sfodYika lslgh mUkj pqfu,A

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

Ans.

140. Match List- I with List - II.

lwph - I dkslwph- II dsl kFk l qsfyr dhft,A

List- I		List- II	
(a)	S phase	(i)	Proteins are synthesized
(b)	G ₂ phase	(ii)	Inactive phase
(c)	Quiescent stage	(iii)	Interval between mitosis and initiation of DNA replication
(d)	G ₁ phase	(iv)	DNA replication

lwph- I		lwph - II	
(a)	S voLFkk	(i)	izks/huksa dk la'ys'k gksrk gS
(b)	G ₂ voLFkk	(ii)	fuf'Ø; voLFkk
(c)	'kkar voLFkk	(iii)	DNA izfrNfrdj dsiijEHk gksusds ahp vUrkj
(d)	G ₁ voLFkk	(iv)	DNA dk izfrNfrdj

Choose the correct answer from the options given below.

uhps fn;sx; sfodYika lslgh mUkj pqfu,A

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

Ans.

141. Which the following statements is correct ?

- (1) Fusion of protoplasts between two motile on non-motile gametes is called plasmogamy.
- (2) Organisms that depend on living plants are called saprophytes.
- (3) Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath K cells.
- (4) Fusion of two cells is called Karyogamy

fuEufyf[kr esds d@u lk dFku lgh gS

- (1) vpy ;qXed"aij n" py ;qXed"ads hp thoæO; dsay;u d" d"f'kdk æO;&y;u dgk tkrk gSA
- (2) t" tho thfor ikni"aij fuZg"rs gsaUgæ`risiithoh dgk tkrk gS
- (3) dqN tho ok; qeaMyh; ukbV"tu ds vkPNkn d"f'kdk dgh tkus okyh fof"k"V d"f'kdkvksa fLFkjñr dj ldrs gS
- (4) n" d"f'kdkvksadslay;u d" dslæd lay;u dgk tkrk gSA

Ans. (1)

142. Which of the following statements is incorrect?

- (1) Stroma lamellae have PS I only and lack NADP reductase.
- (2) Grana lamellae have both PS I and PS II
- (3) Cyclic photophosphorylation involves both PS I and PS II.
- (4) Both ATP and NADPH + H⁺ are synthesized during non-cyclic photophosphorylation.

fuEufyf[kr esds d@u lk dFku xyr gS

- (1) ihfBdk&ySfeyh esa dsoy PS I g"rk gSA NADP fJMDVs t dk vHkko g"rk gSA
- (2) xzkuk ySfeyh esa PS I vkSj PS II n"u"ag"rs gS
- (3) pØh; izdk'k QkLQ"fjys'ku esa PS I vkSj PS II n"u"akkfey g"rs gS
- (4) ATP vkSj NADPH + H⁺ n"u"adk xSj pØh; ; izdk'k QkLQ"fjys'ku ds n@jku la'ys'k k g"rk gS

Ans. (3)

143. Identity correct statement.

- (1) RNA polymerase binds with Rho factor to terminate the process of transcription in bacteria,
- (2) The coding strand in a transcription unit is copied to an mRNA.
- (3) Split gene arrangement is characteristic of prokaryotes.
- (4) In capping, methyl guanosine triphosphate is added to the 3' end of hn RNA.

fuEufyf[kr easls lgh dFku pqfu,A

- (1) thok kqvksa vuqys[ku dh izfrØ;k dk lekhu djus dsfy, vkj-,u-, iwejst] Rho dkjd dslkFk fu/kkr gks tkrk gSA
- (2) ,d vuqys[ku bdkbZsadwV jTtqd] ,d mRNA ij izñr gksrk gSA
- (3) foHkDr th&o;OLFkk izdSj;kvksa dk fof"k"V y{k k gSA
- (4) dSfiar esa esfky Xokukslhu V"kbQkLQsV/ dks hn RNA ds 3' fljss tksMk tkrk gS

Ans. (1)

144. In the exponential growth equation
 $N_t = N_0 e^{rt}$, e represents:
 (1) The base of exponential logarithms
 (3) The base of geometric logarithms

- (2) The base of natural logarithms
 (4) The base of number logarithms

Ans.

145. Now a days it is possible to detect the mutated gene causing cancer by allowing radioactive probe to hybridise its complimentary DNA in a clone of cells, followed by its detection using autoradiography because:
 (1) mutated gene completely and clearly appears on a photographic film.
 (2) mutated gene does not appear on a photographic film as the probe has no complementarity with it.
 (3) mutated gene does not appear on photographic film as the probe has complementarity with it.
 (4) mutated gene partially appears on a photographic film.

(1) mutated gene completely and clearly appears on a photographic film.
 (2) mutated gene does not appear on a photographic film as the probe has no complementarity with it.
 (3) mutated gene does not appear on photographic film as the probe has complementarity with it.
 (4) mutated gene partially appears on a photographic film.

- (1) mutated gene completely and clearly appears on a photographic film.
 (2) mutated gene does not appear on a photographic film as the probe has no complementarity with it.
 (3) mutated gene does not appear on photographic film as the probe has complementarity with it.
 (4) mutated gene partially appears on a photographic film.

Ans.

146. Match Column - I with Column - II.
 Column-I Column-II

Column-I	Column-II
(a) $\% \frac{K_{(5)} C_{1+2+(2)} A_{(9)+1} G_1}{K_{(5)} C_{(5)} A_5 G_2}$	(i) Brassicaceae
(b) $\% \frac{K_{(5)} C_{(5)} A_5 G_2}{P_{(3+3)} A_{3+3} G_{(3)}}$	(ii) Liliaceae
(c) $\% \frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$	(iii) Fabaceae
(d) $\% \frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$	(iv) Solanaceae

Column-I	Column-II
(a) $\% \frac{K_{(5)} C_{1+2+(2)} A_{(9)+1} G_1}{K_{(5)} C_{(5)} A_5 G_2}$	(i) $\frac{K_{(5)} C_{(5)} A_5 G_2}{P_{(3+3)} A_{3+3} G_{(3)}}$
(b) $\% \frac{K_{(5)} C_{(5)} A_5 G_2}{P_{(3+3)} A_{3+3} G_{(3)}}$	(ii) $\frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$
(c) $\% \frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$	(iii) $\frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$
(d) $\% \frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$	(iv) $\frac{K_{(5)} C_{(5)} A_5 G_2}{K_{(5)} C_{(5)} A_5 G_2}$

Select the correct answer from the options given below.
 (a) (b) (c) (d)

- (1) (i) (ii) (iii) (iv)
 (2) (ii) (iii) (iv) (i)
 (3) (iv) (ii) (i) (iii)
 (4) (iii) (iv) (ii) (i)

Ans.

147. Which of the following statements is incorrect?

- (1) In ETC (Electron Transport Chain), one molecule of $\text{NADH} + \text{H}^+$ gives rise to 2ATP molecules, and one FADH_2 gives rise to 3ATP molecules.
- (2) ATP is synthesized through complex V.
- (3) Oxidation-reduction reactions produce proton gradient in respiration. .
- (4) During aerobic respiration, role of oxygen is limited to the terminal stage.

fuEufyf[kr esds dksu lk dFku xyr gS

(1) b-Vh-lh (bysDV^akWu ifjogu Jky) esa, $\text{NADH} + \text{H}^+$ ds, d v kqs , -Vh-ih- dsnksv kq urs gSkSj , d FADH_2 rhu ATP v kq ursgS

(2) , -Vh-ih- dk la'ys" k lfEeJ v ds}kj gksrk gS

(3) mikip;u vfhkfØ; ; p'olu esa izksVksu izo krk mRiUu djrh gS

(4) ok; oh; 'olu dsnksu] vKWDlh tu dH Hkwfedk vafre voLFkk rd lfer gS

Ans. (1)

148. What is the role of RNA polymerase III in the process of transcription in eukaryotes ?

- (1) Transcribes tRNA, 5s rRNA and snRNA
- (2) Transcribes precursor of mRNA
- (3) Transcribes only snRNAs
- (4) Transcribes rRNAs (28S, 18S and 5.8S)

llhedad thoksa vuqys[ku dh ifrØ; k esa vkj-, u-, - illyejst-III dh Hkfedk D;k gS

(1) tRNA, 5s rRNA vSkSj snRNA dksvuqysf[kr djrk gS

(2) mRNA dsiwoZrhZ dksvuqysf[kr djrk gS

(3) dsoy snRNAs dksvuqysf[kr djrk gS

(4) rRNAs (28S, 18S vSkSj 5.8S) dksvuqysf[kr djrk gS

Ans. (1)

149. In some members of which of the following pairs of families, pollen grains retain their viability for months after release?

- | | |
|----------------------------|--------------------------|
| (1) Poaceae ; Leguminosae | (2) Poaceae ; Solanaceae |
| (3) Rosaceae ; Leguminosae | (4) Poaceae : Rosaceae |

fuEufyf[kr esds fdu dqy"ads ; qXe esa mudsdqN lnL; "asaijxd k"adh thou{kerk] mudseqä g"us ds kn eghu'a rd jgrh gS

(1) i",lh] ysX;qfeu"lh

(2) i",lh] l"ysuslh

(3) j"tslh] ysX;qfeukslh

(4) iksh] jkstslh

Ans. (3)

150. Select the correct pair.
- | | | |
|--|---|-------------------------|
| (1) In dicot leaves, vascular bundles are surrounded by large thick-walled cells | - | Conjunctive tissue |
| (2) Cells of medullary rays that form part of cambial ring | - | Interfascicular cambium |
| (3) Loose parenchyma cells rupturing the epidermis and forming a lens shaped opening in bark | - | Spongy parenchyma |
| (4) Large colorless empty cells in the epidermis of grass leaves | - | Subsidiary cells |

fuEufyf[kr esds lgh ; qXe dksqfu, A

(1) f} hti=kh ifÜk ; kasa & ; kSfxd Ård

laogu My eksVh fhkfÜk okyh M+h

dksf'kdkvkalsf?kjsgksrsgS

(2) eTtk fdj kksadh dksf'kdk ; atks & varjiwyh ;

dSi ; e oy ; ds-kkx dk dS ; e

fuekZdjrh gS

(3) kgz;Ropk dksQkM+us okyh & Liath e'nwrđ

f'kfFky e'npkSkdk ; atksNky esa ysal dsvkdj dh fNnz ukrh gS

(4) ?kk l dh ifÜk ; kadh káRopk & lgk ; d dksf'kdk ; a

esa M+h jaxghu fjDr dksf'kdk ; s

Ans. (3)

Section - A (Biology : Zoology)

(2) Improve micronutrient content

(3) Improve micronutrient and mineral content

(4) Improve protein content

fuEu esa dksu Qlykads k ; ksqksfVZfQds'ku dk m's' ; ugha

(1) jksxkadh izfrjks/kdrk esa lqkkj djuk

(2) foVkfue dh ek=kk esa lqkkj djuk

(3) lw{e&iks%dk,a,ao [kfutadh ek=kk ealqkkj djuk

(4) izksVhu dh ek=kk esa lqkkj djuk

Ans. (1)

152. Read the following statements.

- (a) Metagenesis is observed in Helminths
- (b) Echinoderms are triploblastic and coelomate animals.
- (c) Round worms have organ-system level of body organization.
- (d) Comb plates present in ctenophores help in digestion
- (e) Water vascular system is characteristic of Echinoderms.

Choose the correct answer from the options given below.

- (1) (a), (b) and (c) are correct
- (2) (a), (d) and (e) are correct
- (3) (b), (c) and (e) are correct
- (4) (c), (d) and (e) are correct

fuEu dFkuksa dksi<+ka

(a) esVktusfll Ñfe;ksa ik;k tkrk gSA

(b) ,dkbksMeZ f=kdkjd ,ao xqgh; tarqksrsgS

(c) xksyÑfe;ksa laxBu dk Lrj vax ra=k gksrk gSA

(d) VhukQksj esa mifLFkr dadr ifV-Vdk, ikpu esa lgk;rk djrh gS

(e) ty loagu dk ,dkbksMeZ dh fof"Vrk gksrh gSA

fuEu fodYikalsmfor mUkj dk p;u djs

- (1) (a), (b) ,oa (c) lggh gS
- (2) (a), (d) ,oa (e) lggh gS
- (3) (b), (c) ,oa (e) lggh gS
- (4) (c), (d) ,oa (e) lggh gS

Ans. (3)

153. Sphincter of oddi is present at

- (1) Junction of hepato-pancreatic duct and duodenum
- (2) Gastro-oesophageal junction
- (3) Junction of jejunum and duodenum
- (4) Ileo-caecal junction

vkSmlh vojksfduh dgk mifLFkr gksrh gSA

(1) ;Ñr vXuk'k;h okfguh ,oazg kh lfa

(2) tBj&xzfldk laf/k

(3) vxz{kqnka=k ,ao xzg kh lfa

(4) f=kdkar lfa

Ans. (1)

154. Which stage of meiotic prophase shows terminalisation of chiasmata as its distinctive feature?

- (1) Zygotene
- (2) Diakinesis
- (3) Pachytene
- (4) Leptotene

v/kZlw=k iwZLFkk dh dksu l h izkoLFkk dk fof"V y{k k dkb,TesVk dk mikarHkou gSA

(1) ;qXeie

(2) ikjxfrØe

(3) LFkqyiê

(4) ruqiê

Ans. (2)

155. The fruit fly has 8 chromosomes ($2n$) in each cell. During interphase of Mitosis if the number of chromosomes at G_1 phase is 8, what would be the number of chromosomes after S phase? (1)

- 16 (2) 4 (3) 32 (4) 8

QyeD[kh dh izR;sd dksf'kdk esa 8 xq klw=k ($2n$) gksrsgS ;fn lw=kh foHkk tu dh varjkoLFkk dh G_1 izLFkk esa xq klw=kka dh la;k 8 gS s -izLFkk ds kn xdw=kka ad la;k D;k gksxh \

- (1) 16 (2) 4 (3) 32 (4) 8

Ans. (4)

156. For effective treatment of the disease, early diagnosis and understanding its pathophysiology is very important. Which of the following molecular diagnostic techniques is very useful for early detection?

- (1) Southern Blotting Technique (2) ELISA Technique
(3) Hybridization Technique (4) Western Blotting Technique

fdlh jksx dsizkko mijk dsfy, bldsvkajfHk funkku ,ao jskx&f0;k foKku dse>uk gqr egroizs fuEu esa dksu ih vkf od funkku rduhd vkjafHk igpku ds fy, gqr mi;ksxh gS

- (1) InuZ CyksfVax rduhd (2) ELISA rduhd
(3) ladj k rduhd (4) oSLVuZ CyksfVax rduhd

Ans. (2)

157. With regard to insulin choose correct options.

- (a) C-peptide is not present in mature insulin
(b) The insulin produced by rDNA technology has C-peptide
(c) The pro-insulin has C-peptide
(d) A peptide and B-peptide of insulin are interconnected by disulphide bridges
Choose the correct answer from the options given below.

- (1) (b) and (c) only (2) (a), (c) and (d) only
(3) (a) and (d) only (4) (b) and (d) only

balqyhu ds lanHkZsmfpr fodYi dk p;u djksA

- (a) ifjiDo balqyhu esah&isIVkbM ughagksrh A
(b) vkj Mh ,u , iksfxdh smRikfnr balqyhu esah&isIVkbM gksrk gSA
(c) id~balqyhu esah&isIVkbM gksrk gSA
(d) balqyhu ds ,&isIVkbM ,o a&isIVkbM MkbIYQkbM alka;kj ikjLifjd tlls gksrsgS
uhps fn, x;sodYi& smfpr mUkj dk p;u djksA

- (1) dsoy (b) ,oa (c) (2) dsoy (a), (c) rFkk (d)
(3) dsoy (a) rFkk (d) (4) dsoy (b) rFkk (d)

Ans. (2)

158. Match List- I with List - II.

lwph - I dkslwph - II dslkfk feyku djks

List- I		List- II	
(a)	Aspergillus niger	(i)	Acetic acid
(b)	Acetobacter aceti	(ii)	Lactic acid
(c)	Clostridium butylicum	(iii)	Citric acid
(d)	Lactobacillus	(iv)	Butyric acid

lwph - I		lwph - II	
(a)	,sLijftyl ukbxj	(i)	,lhfv d vEy
(b)	,lhvksqSDVj ,flVkbZ	(ii)	ySfDVd vEy
(c)	DyksLVhfM;e C;wvk;fyde	(iii)	flfv d vEy
(d)	ySDVksfily	(iv)	C;wfvjd vEy

Choose the correct answer from the options given below.

fuEu fodYikalsmfpr Lrj dk p;u djks

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

Ans.

(4)

159. Match List- I with List - II.

lwph - I dkslwph - II dslkfk feyku djks

List- I		List- II	
(a)	Metamerism	(i)	Coelenterata
(b)	Canal system	(ii)	Ctenophora
(c)	Comb plates	(iii)	Annelida
(d)	Cnidoblasts	(iv)	Porifera

lwph - I		lwph - II	
(a)	fo[kalMkoLFkk	(i)	lhysUVjsVvk
(b)	uky&r;k	(ii)	VhuksQk;k
(c)	dadr ifêdk	(iii)	,susfyMk
(d)	na'k dksfkd	(iv)	iksijhQ;k

Choose the correct answer from the options given below.

fuEu fodYikalsmfpr Lrj dk p;u djks

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

Ans.

(2)

160. If Adenine makes 30% of the DNA molecule, what will be the percentage of Thymine, Guanine and Cytosine in it ? -

;fn ,d Mh ,u , v kpsa,slmsuhu dh ek=kk 30% gSr Fkk;ehu] Xokuhu ,oakbVkslhu fdrus izfr'kr gka \

(1) T : 20 ; G : 20 ; C : 30

(2) T : 30 ; G : 20 ; C : 20

(3) T : 20 ; G : 25 ; C : 25

(4) T : 20 ; G : 30 ; C : 20

Ans. (2)

161. Select the favourable conditions required for the formation of oxhaemoglobin at the alveoli

(1) Low pO_2 , high pCO_2 more H^+ , higher temperature

(2) High pO_2 , high pCO_2 less H^+ , higher temperature

(3) Low pO_2 , low pCO_2 more H^+ , higher temperature

(4) High pO_2 , low pCO_2 less H^+ , lower temperature

dwfidkvaesa vkDlghheksXyksi u uuds fy, vuqdwy ifjflFkr;kadk p;u djksA

(1) fuEu pO_2 , mPp pCO_2 vf/kd H^+ , vis{k{kÑr mPp rkieku

(2) mPp pO_2 , mPp pCO_2 fuEu H^+ , vis{k{kÑr mPp rkieku

(3) fuEu pO_2 , fuEu pCO_2 vf/kd H^+ , vis{k{kÑr mPp rkieku

(4) mPp pO_2 , fuEu pCO_2 fuEu H^+ , vis{k{kÑr de rkieku

Ans. (4)

162. The organelles that are included in the endomembrane system are

(1) Endoplasmic reticulum, Golgi complex, Lysosomes and Vacuoles

(2) Golgi complex, Mitochondria, Ribosomes and Lysosomes

(3) Golgi complex, Endoplasmic reticulum, Mitochondria and Lysosomes

(4) Endoplasmic reticulum, Mitochondria, Ribosomes and Lysosomes

vari f>fYdk ra=k es dkSu lsdksfkdkaX lfEefyr gksrsgA

(1) varnzZO;h tkfydk] xkllw;th lfEeJ] y;udk; ,oajl/kkuh

(2) xkllw;th lfEeJ] l=kdf kdk] jkb kslkse ,oay;udk;

(3) xkllw;th lfEeJ] varnzZO;h tkfydk] l=kdf kdk ,oay;udk;

(4) varnzZO;h tkfydk] l=kdf kdk] jkb kslkse ,oay;udk;

Ans. (1)

163. Match the following
 feyku djkA

List-I		List-II	
(a)	Physalia	(i)	Pearl oyster
(b)	Limulus	(ii)	Portuguese Man of War
(c)	Ancylostoma	(iii)	Living fossil
(d)	Pinetada	(iv)	Hookworm

lwph - I		lwph - II	
(a)	Qkblsfy;k	(i)	eqDrk'kqfDr
(b)	fyewyl	(ii)	iqrZxkyh ;q) ekuo
(c)	,ulkbysksLVksek	(iii)	thfor thok'e
(d)	fiaDVkMk	(iv)	vadq'kNfe

Choose the correct answer from the options given below

fuEu fodYikalsmfpr Lrj dk p;u djkA

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

Ans.

164. The partial pressures (in mm Hg) of oxygen (O₂) and carbon dioxide (CO₂) at alveoli (the site of diffusion) are:

(1) pO₂ = 40 and p O₂ = 45

(2) pO₂ = 95 and pCO₂ = 40

(3) pO₂ = 159 and pCO₂ = 0.3

(4) pO₂ = 104 and pCO₂ = 40

dwhdkkksioLj k LFky½ esa vkDhtu (O₂) ,oadk Zu MkbvDkM (CO₂) dk vkafkd n ko (mm Hg esa) gksrk gS

(1) pO₂ = 40 ,oa p O₂ = 45

(2) pO₂ = 95 ,oa pCO₂ = 40

(3) pO₂ = 159 ,oa pCO₂ = 0.3

(4) pO₂ = 104 ,oa pCO₂ = 40

Ans.

165. Match List - I with List - II.

lwph - I dkslwph - II dskFk feyku djkA

List- I		List- II	
(a)	Valuts	(i)	Entry of sperm through Cervix is blocked
(b)	IUDs	(ii)	Removal of Vas deferens
(c)	Vasectomy	(iii)	Phagocytosis of sperms within the Uterus
(d)	Tubectomy	(iv)	Removal of fallopian tube

List- I		List- II	
(a)	okWVV	(i)	xHkkZ'k; xDok esa 'kQkqdsi zos'k dksjksdrs gS
(b)	vkBZ;wMh	(ii)	'kqQokgd dksVgVuk
(c)	'kqQokgd mPNsnu	(iii)	xHkkZ'k; esakqQkqvkadh Hk{kdkqfD;k
(d)	ufydk mPNsnu	(iv)	fMEokfguh ufydk dksVgVuk

Choose the correct answer from the options given below.

fuEu fodYikalsmfpr Lrj dk p;u djkA

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

Ans.

166. During the process of gene amplification using PCR, if very high temperature is not maintained in the beginning, then which of the following steps of PCR will be affected first?
- (1) Extension (2) Denaturation (3) Ligation (4) Annealing
- ih lh vkj dsmi;ksx lsth i zo/kZu dh vfhkfØ;k dsnkSjku ;fn vkja esa mPp rkieu uk ughajgrk r fuEu
- ih lh vkj dk dksu lk pj k igys i:hkfor gksxk \
- (1) izlkj (2) fuf'Ø;dj k (3) ykbs'ku (4) rkikuq'khyu

Ans. (2)

167. Identify the incorrect pair.
- (1) Toxin – Abrin
(2) Lectins – Concanavalin A
(3) Drugs – Ricin
(4) Alkaloids – Codeine
- vuqfpr ;qXe dksigpkfu,A
- (1) fo"k – , fju
(2) ySfDVu – dksudSukofyu A
(3) M^ax – fjflu
(4) ,YdSykM~l – dksMhu

Ans. (3)

168. Chronic auto immune disorder affecting neuro muscular junction leading to fatigue, weakening and paralysis of skeletal muscle is called as:
- (1) Muscular dystrophy (2) Myasthenia gravis
(3) Gout (4) Arthritis
- nh?kZdkyh Loizj{kk fodkj tksaf=kdk is'kh; ldk dsi for djrh gS,oftldsdkj k dadky is'kh esa detksjh ,oai{k?kk r gksrk gq dgrykrh gS
- (1) is'kh; nq"iks'k k (2) ekbLFksfu;k xzsfol
(3) xkmV (4) laf/k'kkk

Ans. (2)

169. Which enzyme is responsible for the conversion of inactive fibrinogens to fibrins ?
- (1) Renin (2) Epinephrine (3) Thrombokinase (4) Thrombin
- dkSu lk batkbe fuf'Ø; Qkbf zkstu dksQkbf zu esa nyus dsfy, mUkjnk;h gS
- (1) jsfuu (2) ,fiusYhu (3) FkksE kdkbust (4) FkksE u

Ans. (4)

170. The centriole undergoes duplication during
- (1) Prophase (2) Metaphase (3) G₂ phase (4) S-phase
- rkjdd d f}xqf kr gksrk gS
- (1) iqzLFkk (2) e/;koLFkk (3) G₂ izkoLFkk (4) S-izkoLFkk

Ans. (4)

171. Which one of the following organisms bears hollow and pneumatic long bones ?
 (1) Hemidactylus (2) Macropus (3) Ornithorhynchus (4) Neophron

Ans (4)

172. Receptors for sperm binding in mammals are present on:
 (1) Vitelline membrane (2) Perivitelline space
 (3) Zona pellucida (4) Corona radiata

Ans (3)

173. A specific recognition sequence identified by endonucleases to make cuts at specific positions within the DNA is :
 (1) Okazaki sequences (2) Palindromic Nucleotide sequences
 (3) Poly (A) tail sequences (4) Degenerate primer sequence

Ans (2)

174. In a cross between a male and female, both heterozygous for sickle cell anaemia gene, what percentage of the progeny will be diseased?

Ans (2)

175. Which is the "Only enzyme" that has "Capability" to catalyse initiation, Elongation and Termination in the process of transcription in prokaryotes
 (1) DNA dependent RNA polymerase (2) DNA ligase
 (3) DNase (4) DNA dependent DNA polymerase

Ans (1)

176. Success entericus is referred to as :
- (1) Intestinal juice (2) Gastric juice (3) Chyme (4) Pancreatic juice

Ans (1)

177. Which one of the following. is an example of Hormone releasing IUD ?
- (1) LNG 20 (2) Cu 7 (3) Multiload 375 (4) CuT

Ans (1)

178. Veneral diseases can spread through:
- (a) Using sterile needles
(b) Transfusion of blood from infected person
(c) Infected mother to foetus
(d) Kissing
(e) Inheritance
- Choose the correct answer from the options given below.
- (1) (b), (c) and (d) only (2) (b) and (c) only
(3) (a) and (c) only (4) (a), (b) and (c) only

- (a) Using sterile needles
(b) Transfusion of blood from infected person
(c) Infected mother to foetus
(d) Kissing
(e) Inheritance
- Choose the correct answer from the options given below.
- (1) (b), (c) and (d) only (2) (b) and (c) only
(3) (a) and (c) only (4) (a), (b) and (c) only

Ans (2)

179. Dobson units are used to measure thickness of:
- (1) Stratosphere (2) Ozone (3) Troposphere (4) CFCs

Ans (2)

180. Persons with 'AB' blood group are called as "Universal recipients". This is due to:

- (1) Absence of antigen A and B in plasma
- (2) Presence of antibodies, anti-A and anti-B and anti-B in on RBCs
- (3) Absence of antibodies, anti-A and anti-B, in plasma
- (4) Absence of antigens A and B on the surface of RBCs

'AB' jDr lewg ds0;fDr;kædksloZzkgh D;kædgrs gSA

- (1) lykTek esa izfrtu A ,oa B dh vuqifLFkr ds dkj k
- (2) RBCs es ,æh -A ,oa ,æh -B izfrj{kh dh mifLFkr ds dkj k
- (3) lykTek esa ,æh -A ,oa ,æh -B izfrj{kh dh vuqifLFkr ds dkj k
- (4) RBCs dh lrg ij izfrtu A ,oa B dh vuqifLFkr ds dkj k

Ans (3)

181. Which of the following RNAs is not required for the synthesis of protein?

fuEu esa izksvhu la'y's'k k dsfy, dkSu lk RNAs vko';d ughagS

- (1) tRNA
- (2) rRNA
- (3) SiRNA
- (4) mRNA

Ans (3)

182. Which of the following statements wrongly represents wrongs represents the nature of smooth muscle?

- (1) They are involuntary muscles
- (2) Communication among the cells is performed by intercalated discs
- (3) These muscles are present in the wall of blood vessels
- (4) The muscle have no striations

fuEu dFkksa esa dkSu fpuh is'kh dh izfr dksvuqfpr :lk ls n'kkZrk gS

- (1) ;sUkSfPNd is'k;k gksrk gS
- (2) dksf'kdkvkædæ/; lapj k varfoZV fMLd }kjk gksrk gSA
- (3) ;sis'k;k jDr okfgdk dh fhkfÜk esa mifLFkr gksrk gSA
- (4) bu is'k;k eas/kkfj;k ughagksrk gSA

Ans (2)

183. Which of the following characteristics is incorrect with respect to cockroach? -

- (1) Hypopharynx lies within the cavity enclosed by the mouth parts
- (2) In females, 7th. 9th sterna together form a genital pouch.
- (3) 10th abdominal segment in both sexes, bears /pair of anal cerci.
- (4) A ring of gastric caeca is present at the Junction of midgut and hind gut

frypVVs dsla alk es dkSu lh fof'k"Vrk, vuqfpr gSA? -

- (1) v/kksxzlus eq[k Hkkkksa }kjk ukbZx;h izxqgk eas gksrk gSA
- (2) eknk eas 7th. 9th rd v/kjd feydj tufud dks"B ukrs gSA
- (3) nksuksafyaxks esa 10th [kaM esa xqnh; ywe ik;stkr gSA
- (4) e/;ka=k ,oi'pkæ=k dsaf/k LFky ij tBjh; vakuky dk ,d oy; gksrk gSA

Ans (4)

184. Which one of the following belongs to the family Muscidae?
 (1) Grasshopper (2) Cockroach (3) Housefly (4) Fire fly
 fuEu eas dkSu efLdMh dqy eas vkrk gS
 (1) fVik (2) frypêk (3) eD[kh (4) pqxuw
- Ans (3)

185. Erythropoietin hormone which stimulates R.B.C. formation is produced by :
 (1) The cells of rostral adenohypophysis (2) The cells of bone marrow
 (3) Juxtaglomerular cells of the kidney (4) Alpha cells of pancreas
 bfjFkzikbZfVu gkekS tksR.B.C. dsfuekZ k ijr djrk gSmldk mRiknu dkSu djrk gS
 (1) jksLV^ay ,fMuksgkbiksQkbfi dh dksf'kdk, (2) vLFk eTtk dh dksf'kdk,
 (3) o'Dd dh tDLVXyksElsy dksf'kdk, (4) vXuk'k; dh α- dksf'kdk,
- Ans (3)

Section-II

Single Choice Type

This section contains **15 Single choice questions**. Each question has 4 choices (1), (2), (3) and (4) for its answer, out of which **Only One** is correct.

bI [k M esa 15 ,dy fodYi ih iz'u gSi iz'd iz'u ds4 fodYi (1), (2), (3) rFkk (4) gSa fuesas flQZ,d lgh gSA

186. Match List-I with List-II
 lwph-I dk lwph-II dskFk feyku djks

	List-I		List-II
(a)	Filariasis	(i)	Haemophilus influenzae
(b)	Amoebiasis	(ii)	Trichophyton
(c)	Pneumonia	(iii)	Wuchereria bancrofti
(d)	Ringworm	(iv)	Entamoeba histolytica

	lwph-I		lwph-II
(a)	Qkbyj,fii	(i)	ghekSYI bafljq,ith
(b)	vehark	(ii)	V%bdkQbVkvWu
(c)	U; weksfu;k	(iii)	oqpsjsfj;k qSksfVkbZ
(d)	fjaxoeZ	(iv)	,aVvehark fgLVksfVdk

Choose the correct answer from the options given below.

fuEu fodYi kalsmfor mUkj dk p;u djksA

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

Ans (1)

187. Following are the statements about prostomium of earthworm.

- (a) It serves as a covering for mouth.
- (b) It helps to open cracks in the soil into which it can crawl.
- (c) It is one of the sensory structures.
- (d) It is the first body segment.

Choose the correct answer from the options given below.

- (1) (a), (b) and (d) are correct
- (2) (a), (b), (c) and (d) are correct
- (3) (b) and (c) are correct
- (4) (a), (b) and (c) are correct

Ans (2)

Ans

188. Match List - I with List - II

lwph - I dkslwph - II dskFk feyku djksA

	List-I		List-II
(a)	Adaptive radiation	(i)	Selection of resistant varieties due to excessive use of herbicides and pesticides
(b)	Convergent evolution	(ii)	Bones of forelimbs in Man and Whale
(c)	Divergent evolution	(iii)	Wings of butterfly and Bird
(d)	Evolution by anthropogenic action	(iv)	Darwin Finches

	lwph-I		lwph -II
(a)	vudwyh fofdj	(i)	'kkduk'kh ,oaihm+duk'kh dsvR;f/kd mi;k ls izfrjksikh fdLeksd p;u
(b)	vfhk ljkjh fodk	(ii)	Ekuq"; ,oalgsy dsvxzikh dh vLFk;k
(c)	viljkjh fodk	(iii)	frryh ,oai{kh dsiafk
(d)	Ekkuoh; fØ;vka ds}kjk fodk	(iv)	MkfoZu dh faQap

Choose the correct answer from the options given below.

fuEu fodYikaalsmfpr mÜkj p;u djksA

- (1) (iii) (ii) (i) (iv)
- (2) (ii) (i) (iv) (iii)
- (3) (i) (iv) (iii) (ii)
- (4) (iv) (iii) (ii) (i)

Ans

(4)

189. Following are the statements with reference to 'lipids'.
- (a) Lipids having only single bonds are called unsaturated fatty acids.
 - (b) Lecithin is a phospholipid.
 - (c) Trihydroxy propane is glycerol.
 - (d) Palmitic acid has 20 carbon atoms including carboxyl carbon.
 - (e) Arachidonic acid has 16 carbon atoms.

Choose the correct answer from the options given below.

- (1) (c) and (d) only
- (2) (b) and (c) only
- (3) (b) and (e) only
- (4) (a) and (b) only

fyfiM lsa tkr dFku uhps fn; x; gSA

(a) ,sls fyfiM ftuesadsoy ,dy v/k alk gksrsga Ugavlar`lr olk vEY dgrs gS

(b) ysfIFku QKWLQkfyfiM gSA

(c) V%kbgkbM%kWDlh izW/su fXylj kWy gSA

(d) ikfYefVd vEY esa dk kDly dk Zu lfgr 20 dk Zu dsijek kqksrsgSA

(e) ,sjsfMksfud vEY eas 16 dk Zu ijek kqksrsgSA

fuEu fodYikalsmfpr mUkj dk p;j djka

- (1) dsoy (c) ,oa (d)
- (2) dsoy (b) ,oa (c)
- (3) dsoy (b) ,oa (e)
- (4) dsoy (a) ,oa (b)

Ans (2)

190. **Assertion (A) :**

A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and heart palpitations.

Reason (R):

Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen

In the light of the above statements, choose the correct answer from the options given below.

- (1) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (2) (A) is true but (R) is false
- (3) (A) is false but (R) is true
- (4) Both (A) and (R) are true and (R) is the correct explanation of (A)

dFku (A) :

t ,d O;fDr mPp raqxrk ij tkrk gS og raqxrk hekjh dsy{k k tSls lak l ysus esa dfBukbZoân; dh /kM+du <rk eglwl djrk gS

dkj k (R):

mPPk raqxrk ij fuEu ok; qeaMyh; nk dsdkj k 'kjj dk i;kZr vkWDlh tu ughafey ikrhA

mi;Zr dFkuksa ds izdk'k esa fuEu fodYikasa lslgh mUkj dk p;u djka

- (1) nksuksa (A) ,oa (R) lR; gS Sfd (R) , (A) dh mfpr O;k[k; k ugha gS
- (2) (A) lR; gS Sfd (R) v lR; gSA
- (3) (A) v lR; gS Sfd (R) lR; gSA
- (4) nksuksa (A) ,oa (R) lR; gS ,oa (R) , (A) dh mfpr O;k[k; k gS

Ans (4)

191. Match List - I with List – II

lwph - I dkslwph– II dskFk feyku djka

	List-I		List-II
(a)	Allen's Rule	(i)	Kangaroo rat
(b)	Physiological adaptation	(ii)	Desert lizard
(c)	Behavioural adaption	(iii)	Marine fish at depth
(d)	Biochemical adaption	(iv)	Polar seal

	lwph -I		lwph -II
(a)	,syu dk fu;e	(i)	daxk :- pwgk
(b)	'kjhj fØ;kRed vuqdwyu	(ii)	e:LFkyh fnidyh
(c)	O;ogkfjd vuqdwyu	(iii)	xgjbZaseqæh eNyh
(d)	tSojlk;fud vuqdwyu	(iv)	/kq; Hkkyw

Choose the correct answer from the options given below.

Ukhrs fn, x;sfodYilals mfpr mÜkj dk p;u djka

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

Ans (2)

192. Which one of the following statements about. Histones is wrong?

- (1) The pH of his tones is slightly acidic.
- (2) Histones are rich in amino acids – Lysine and Arginine.
- (3) Histones carry positive charge in the side chain.
- (4) Histones are organized to form a unit of 8 molecules.

fuEu esa fgLVksu dsfo"ke eas dkSu lk dFku xry gS

- (1) fgLVksu dh pH fdafr vEyh; gksrh gSA
- (2) fgLVksu esaykbfllu ,oavkftZfuu ,sehuksvEy izpqj gksrsgSA
- (3) fgLVksu dh ik'oZlk'alkyk eas /kukRed vkos'k gksrk gSA
- (4) fgLVksu axfBu gksdj 8 v kvksdh dh ,d bdkbZ ukrs gSA

Ans (1)

- 193. Statement I :** The codon 'AUG' codes for methionine phenylalanin
Statement II : 'AAA' and 'AAG' both codons code for the amino acid lysine.
 In the light of the above statements, choose the correct answer from the options given below.

- (1) Both Statement I and Statement II are false
 (2) Statement I is correct but Statement II is false
 (3) Statement I is incorrect but Statement II is true
 (4) Both Statement I and Statement II are true

Ans (2)

194. Match List-I with List-II.

List-I

- (1) nksuk dFku I dFku II xyr gS
 (2) dFku I lgh gS dFku II xyr gS
 (3) dFku xyr gS dFku II lgh gS
 (4) nksuk dFku I dFku II lgh gS

Ans

194. Match List-I with List-II.

List-I

	List-I		List-II
(a)	Scapula	(i)	Cartilaginous joints
(b)	Cranium	(ii)	Flat bone
(c)	Sternum	(iii)	Fibrous joints
(d)	Vertebral column	(iv)	Triangular flat bone

	List-I		List-II
(a)	LdSiqyk	(i)	mikfLFk ; qDr tksll+
(b)	dily	(ii)	+ipVh vLFk
(c)	mjksfLFk	(iii)	js'kh ; tksll+
(d)	d'ks:d naM	(iv)	f=kHkqtkdkj piVh vLFk

Choose the correct answer from the options given Below

Ans (3)

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

Ans

195. Which of the following secretes the hormone, relaxin, during the later phase of pregnancy ?

- (1) Corpus luteum (2) Foetus
(3) Uterus (4) Graafian follicle

lxHkZrk dsmÜjk/kZd h vof/k esa dkSu fjjySfDlu gkekZ dk L=kkfor djrk gS

- (1) iir fi al (2) HkV
(3) xHkkZ'k; (4) xzkQh iqVd

Ans (1)

196. Identify the types of cell junctions that help to stop the leakage of the substances across a tissue and facilitation of communication with neighbouring cells via rapid transfer of ions and molecules.

- (1) Tight junctions and Gap junctions, respectively.
(2) Adhering junctions and Tight junctions, respectively
(3) Adhering junctions and Gap junctions, respectively.
(4) Gap junctions and Adhering junctions, Respective

dkSf'kdK laf/k; ,oav'k; ukSa ,oav kqvkaeds
rkLFkkukarj k siMkslh dkSf'kdK dvedse/; lapj k LFkkfir djrh gSA

- (1) Ø'e'kl n'<+ laf/k ,oavarjkyh laf/k
(2) Ø'e'kl vlati laf/k ,oan'<+ laf/k
(3) Ø'e'kl vlati laf/k ,oavarjkyh laf/k
(4) Ø'e'kl varjkyh laf/k ,oavati laf/k

Ans (1)

197. Which of these not an important component of initiation of parturition in humans?

- (1) Synthesis of prostaglandins (2) Release of Oxytocin
(3) Release of Prolactin (4) Increase in estrogen and progesterone ratio

Ekkua esa izlo dsvjka dsfy, fuEu esa dkSu egRo iwo; o ugha gS

- (1) izksLVkXySafMu dk la'ys'k k (2) vkWDihVksflu dk ekspu
(3) izksySfDVu dk ekspu (4) ,LV'kstu ,oai zksstLVjksu dsvuqikr easo'f)

Ans (3)

198. Which of the following is not a step in "Multiple Ovulation Embryo Transfer" Technology (MOET) ?

- (1) Cow yields about 6-8 eggs at a time
(2) Cow is fertilized by artificial insemination
(3) Fertilized eggs are transferred to surrogate mothers at 8-32 cell stage
(4) Cow is administered hormone having LH like activity for super ovulation

fuEu esa dkSu eYVhiy vksowys'ku ,s; z;ksV'kalQj rduhd (MOET) dk pj k ugha gS

- (1) xk; ,d le; esa yxHkx 6-8 valls mRiUu djrh gSA
(2) xk; dksñf=ke oh;Zlspu jkjk fu"ksfpr fd;k x;k tkrk gSA
(3) fu"ksfpr valls 8-32 dksf'kd volFkk esa ifu;qDr eknk esa LFkkukarfjr fd;stkr gS
(4) xk; eas mPPk vaMksRitZu dsfy, LH tSlh fØ;k okyk gkekZ fn;k tkrk gSA

Ans (4)

199. During muscular contraction which of the following events occur? "

- (a) 'H' zone disappears
- (b) 'A' band widens
- (c) 'I' band reduces in width
- (d) Myosine hydrolyzes ATP, releasing the ADP and Pi
- (e) Z-lines attached to actins are pulled inwards

Choose the correct answer from the options given below.

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

lks'kh l adqpu esa dkSu l h ?kVuk, gS

(a) 'H' (ks=k foyqIr gkstkrk gS

(b) 'A' S pkSl+k gkstkrk gS

(c) 'I' S dh pkSbZde gstkrh gS

(d) ek;ksflu ATP, dkstyvi?kfVY dj ADP ,oa Pi dk ekspu djrk gSA

(e) ,fDVu l sayfXur Z-j's[kk vUnj dh rjQ [khap tkrh gSA

fuEu fodYi alslgh mUkj dk p;u djksA

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

Ans (4)

200. The Adenosine deaminase deficiency results into:

- (1) Parkinson's disease
- (2) Digestive disorder
- (3) Addison's disease
- (4) Dysfunction of Immune system

,Mhuksflu fM,ehus t dh deh ls D;k gksrk gS

(1) ikfdll jksx

(2) ikpu fodkj

(3) ,Mhlu jksx

(4) izfrj{kh ra=k dk;Zghu gksuk

Ans (4)