Version No.				
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ROLL NUMBER						

BIOLOGY HSSC–II

SECTION – A (Marks 17)

Time allowed: 25 Minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed.

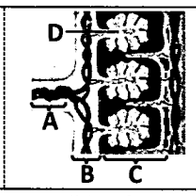
Do not use lead pencil.

حصہ اوّل لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر ناظم مرکز کے حوالے کریں۔ کاٹ کر دوبارہ لکھنے کی اجازت نہیں ہے۔ لیڈ پنسل کا استعمال ممنوع ہے۔

Answer Sheet No. _____

ہر سوال کے سامنے دیے گئے، کریکولم کے مطابق درست دائرہ کو پر کریں۔ **Invigilator Sign.** _____

Fill the relevant bubble against each question according to curriculum: **Candidate Sign.** _____

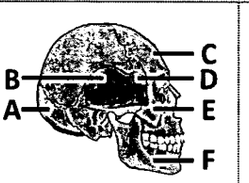
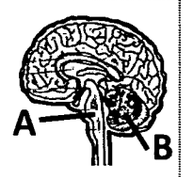
	Question	A	B	C	D	A	B	C	D
1.	The adjustment of plants to a new locality is termed as:	Hybridization	Heterosis	Selection	Acclimatization	○	○	○	○
2.	The agonistic behavior shown by worker bees in honeybee hive is:	Dominance	Aggregation	Altruism	Territoriality	○	○	○	○
3.	Which one of the following event occurs during inspiration?	Less pressure in lungs	Decrease in thoracic cavity volume	Rib cage lowers	Diaphragm relaxes	○	○	○	○
4.	The **nitrogenous** waste excreted by sparrow is:	Ammonia	Uric acid	Urea	Carbon dioxide	○	○	○	○
5.	Which one of the following structures filters blood at high pressure to form glomerular filtrate?	Loop of Henle	Collecting duct	Proximal convoluted tubule	Renal corpuscle	○	○	○	○
6.	The bone dissolving cells are:	Chondrocytes	Osteocytes	Osteoblasts	Osteoclasts	○	○	○	○
7.	The immobility and fusion of vertebral joints is called:	Spondylosis	Arthritis	Sciatica	Sprain	○	○	○	○
8.	Which part of the brain acts as the primary control centre for breathing in humans?	Cerebrum	Thalamus	Cerebellum	Medulla	○	○	○	○
9.	Melanocyte stimulating hormone is produced by:	Thyroid gland	Pituitary gland	Adrenal gland	Pancreas	○	○	○	○
10.	A conditioned reflex differs from a simple reflex as it:	Is learned through experience	Does not involve the nervous system	Is involuntary	Involves spinal cord only	○	○	○	○
11.	Identify the umbilical cord: 	C	D	A	B	○	○	○	○
12.	Which hormone is responsible for the initiation of labour in humans?	Prolactin	Oxytocin	Progesterone	Estrogen	○	○	○	○
13.	Thyrotropin releasing factor (TRF) is produced by?	Thymus gland	Thalamus	Hypothalamus	Thyroid gland	○	○	○	○
14.	Which one of the following is **NOT** an example of polygenic trait in humans?	Skin color	Height	Tongue rolling	Intelligence	○	○	○	○
15.	The unwinding of DNA duplex during replication is caused by:	DNA polymerase-I	Primase	DNA gyrase	DNA helicase	○	○	○	○
16.	The best way to **prevent** tetanus is:	Keep cleanlines	Use medicines	Use Antibiotics	Have vaccination	○	○	○	○
17.	The compound(s) mainly responsible for depletion of the ozone layer is/are:	Nitrous oxide	Chlorofluorocarbons (CFCs)	Carbon dioxide	Methane	○	○	○	○

BIOLOGY HSSC–II

Time allowed: 2:35 Hours **Total Marks Sections B and C: 68**

SECTION – B (Marks 42)

Q. 2 Answer the following parts briefly. **14x3=42**

(i)	Which characteristics of respiratory surfaces make them efficient for exchange of gases? Write briefly.	1x3	OR	Briefly narrate the osmoregulatory adaptations which help freshwater animals to live in their habitat successfully.	1x3
(ii)	What is back crossing? Elaborate the process with reference to horticulture.	03	OR	Narrate the role of hormones produced by adrenal medulla. (Write names and functions)	1x3
(iii)	Differentiate between resting and active membrane potential. (Any three differences)	03	OR	Label the parts A, B, C, D, E and F. 	03
(iv)	State the principle of peritoneal dialysis. Also write its process.	1+2	OR	Enlist main postulates of Lamarckism. How evolution of giraffe neck can be explained according to Lamarckism?	1+2
(v)	a. Label the parts A and B. b. Which part of Limbic system regulates autonomic functions? c. Which part of Limbic system can be called emotional center? And why? 	1x3	OR	Differentiate between skeletal and cardiac muscles. (Any three differences)	03
(vi)	Briefly describe three types of joints with one example of each.	1x3	OR	Elaborate the role of any three excitatory neurotransmitters.	1x3
(vii)	Outline the process of in vitro fertilization to solve problem of infertility.	03	OR	Justify why Rh incompatibility could be a danger to the developing fetus and mother.	1+2
(viii)	How do genetic and extrinsic factors affect process of aging?	2+1	OR	Outline the hormonal regulation of the male reproductive system in humans.	03
(ix)	What is meant by incomplete dominance? Explain briefly with the help of a suitable example.	1+2	OR	Write briefly about three models proposed about mechanism of DNA replication.	1x3
(x)	How Y-linked inheritance occurs in males? Also give one example.	2+1	OR	Write down the principle of gel electrophoresis. Also write its uses.	2+1
(xi)	Differentiate between convergent and divergent evolution on the basis of inheritance of homologous and analogous organ.	03	OR	What are greenhouse gases? Briefly explain their effect on global warming.	1+2
(xii)	What are organizers? Differentiate between primary and secondary induction during development.	1+2	OR	Interpret the pyramid of number with example.	03
(xiii)	What is allopatric mode of speciation? Briefly explain with an example.	1+2	OR	What are the properties of a good vector? Write any three.	03
(xiv)	What is genomic library? How is it constructed?	1+2	OR	Briefly explain the XX-XY mechanism of sex determination with examples.	03

SECTION – C (Marks 26)

Note: Attempt the following questions.

Q.3	Describe the process of gaseous transport of carbon dioxide in humans.	3+2 +1	OR	Explain imprinting and latent learning behaviors with examples.	3+3
Q.4	Explain neurulation process in human embryo. Also draw diagram.	5+2	OR	Explain the principle and method of DNA sequencing used by Sanger-Coulson. Draw diagram.	5+2
Q.5	Describe mechanism of polymerase chain reaction. Also draw diagram.	4+2	OR	State Mendel's law of independent assortment. Explain and prove it with a suitable example.	1+5
Q.6	Explain mechanism of translation starting from formation of initiation complex. Also draw diagram.	5+2	OR	Explain stages of xerarch succession.	07