



DEFENCE SERVICES MEDICAL ACADEMY
ENTRANCE EXAMINATION
BIOLOGY

ATTEMPT ALL QUESTIONS

17 - 8 - 2018.

(Write down the answers on the answer book)

Time allowed: (2) hours

SECTION (A) ZOOLOGY

1. State TRUE or FALSE to the following statements. Do not copy the statements.

(10 marks)

- i. The vacuole containing food and water is formed at the anterior end of the cytopharynx in *Paramecium*.
- ii. The cytopharynx of *Paramecium* ends in the endoplasm.
- iii. Respiratory impulses travel down the phrenic nerves to the diaphragm during gaseous exchange in mammals.
- iv. The air is driven out of the lungs during the process of inspiration in mammals.
- v. Lymphatics are similar to most veins in many ways.
- vi. Plasma consists of about 10 % water and 90% materials in solution and suspension.
- vii. The lymph capillaries are closed at one end and join with the larger tube called the lymphatics at the other end.
- viii. The nervous system of mammal is made up of the brain and spinal cord.
- ix. Neurones conduct nerve impulses from one part of the body to another.
- x. The process in which an egg unites with a sperm is called implantation.

2. Complete the following statements with appropriate words. Do not copy the statements.

(10 marks)

- i. The function of premolar and molar are for crushing and ----- food.
- ii. During exercise, the physiological dead space is -----.
- iii. Thrombocytes are also termed as -----.
- iv. Each lymph node is made up of ----- tissue and cells.
- v. Some serum globulins are ----- while some carries hormones and vitamins.

- vi. The hormone ----- increases the rate of heart beat.
 - vii. Iris of the human eye controls the size of the -----.
 - viii. Epididymis in the male reproductive system stores up mature----- temporarily.
 - ix. Breast-feeding ensures close contact between mother and baby, and ----- care.
 - x. The embryo eventually develops into a ----- with recognizable human features.
3. (a) Name the seven groups of limb muscles in man. **(3 marks)**
- (b) Give the functions of testes, urethra and sperm duct in male reproductive system. **(3 marks)**
4. (a) Explain how muscular contractions of the gut wall increase the efficiency of chemical digestion. **(4 marks)**
- (b) Name the two stages of gaseous exchange in man and explain the stage that concerns with drawing of air into the lungs. **(4 marks)**
5. (a) With a labelled diagram explain the prominent features of parts of the rabbit's brain that are concealed by the cerebral hemispheres from the dorsal view. **(8 marks)**
- (b) List the various stages of nitrogen cycle and describe the processes that convert ammonium compounds into nitrogenous compounds which in turn into gaseous nitrogen. **(8 marks)**

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. **(10 marks)**
- i. Plants that live upon dead organic matter are termed as hydrophytes.
 - ii. Each stamen consists of ovary, style and stigma.
 - iii. Fruits develop from the ovules of the flowers.
 - iv. Fats and oils are obtained from a large variety of seeds.
 - v. The release of oxygen from green plants is an indication of photosynthesis.

- vi. Aerobic respiration takes place in the absence of oxygen.
- vii. Water makes up two-thirds or more of living active protoplasm.
- viii. Plants respond to light, gravity touch and water.
- ix. A sexual reproduction is common in plants.
- x. The roots of orchids obtain nutrients and water from the air.

7. **Complete the following statements with appropriate words. Do not copy the statements.** **(10 marks)**

- i. Plants which live for many years are termed as -----.
- ii. The function of both the androecium and gynoecium is -----.
- iii. Three groups of fruits are simple, ----- and composite.
- iv. Seeds play an ----- role in our everyday lives.
- v. Nutrition of green plants is termed as -----.
- vi. Plants would wilt without ----- pressure.
- vii. Lateral roots grow at right angles to -----.
- viii. One functional ----- is produced from the megaspore mother cell by the process of meiosis.
- ix. Chromosome number of ----- products is half that of the mother cell.
- x. Pollution can occur in the atmosphere, in the soil, in the sea or in -----.

- 8. (a) Differentiate fleshy and dry fruits. **(3 marks)**
- (b) State the types of messages that result from information. **(3 marks)**

- 9. (a) Define the term osmosis and give differences between a weak and a strong solution. **(3 marks)**
- (b) Describe the external structure of a maize grain and mention its type of germination. **(5 marks)**

- 10. (a) State briefly about diffusion and how water is absorbed by cells of root and then to central vascular bundle in land plants. **(8 marks)**
- (b) Explain the process of sexual reproduction as found in plants. **(8 marks)**



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17.8.2018

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Time allowed: 2 hours

I. Read the passage. (15 marks)

There is one more point I feel I ought to touch on. Recently, I heard a well-known television personality declare that he was against advertising because it persuades rather than informs. This is hair-splitting. Of course, advertising seeks to persuade. If it only gave information, advertising would be so boring that no one would pay any attention. But perhaps that is what the well-known television personality wants. I am prepared to make just one admission to the opponents of advertising. Not every advertisement is a good one. Some advertisements are silly. Some are pointless-though not very many. Pick up the nearest magazine or newspaper and count the advertisements that really offend you. And then count the advertisements that, in some degree, interest you, or give you pleasure. And be honest!

(A) Write the correct word or words to complete each sentence.

- (1)thinks that advertising is a kind of persuasion.
- (2) It is true that advertising tries not only to inform but also tothem.
- (3) If a person separates persuasion from informing, he is
- (4) Nobody will be interested in the articles advertised if advertising is very
- (5) Generally, people pay greatto the interesting advertisements.

(B) Answer each question in complete sentence.

- (6) What would happen if advertising gave information only?
- (7) Why was the well-known television personality against advertising?
- (8) What does the well-known television personality want?
- (9) Why didn't we say that every advertisement is a good one?
- (10) Which ones are more- the advertisements that offend people or the advertisements that gave people pleasure?

II. Fill in each numbered blank with a word from the list given. (10 marks)

with	apparent	If	will	thirty
hours	the	it	important	people
someone	hours	psychologically	our	throat
for	an	airway	everything	called

Some snorers have a condition1.....sleep apnea. They stop breathing up to2.....or forty times an hour because the3.....muscles relax too much and block the4..... Most people need from 7½ to 8½5.....of sleep a night, but this varies6.....individuals. Babies sleep eighteen hours, and old7.....need less sleep than younger people. If8.....continually sleeps longer than normal for no9.....reason, there may be something physically or10.....wrong. You cannot save hours of sleep11.....way you save money in the bank.12.....you have only 5 hours of sleep13.....three nights, you don't need to sleep ...14....extra 9 hours on the weekend. And15.....doesn't do any good to sleep extra16.....ahead of time when you know you17.....have to stay up late. Sleep is18....to humans. We spend a third of ...19....lives sleeping, so we need to understand20.....we can about sleep.

III. Write the appropriate words or groups of words to complete the sentences and lines of verse. (10 marks)

- The advertisers know that everyone tends to dream of having
 - It would be foolish to suggest thatdo not matter at all.
 - The hourglass came into use after was invented.
 - Shopping in self-service supermarkets is said to be and more economical.
 - Temburong Zoo in the eastern part of Brunei Darussalam has a variety of
 - Blest, who can
- Hours, days and years, slide soft away
- These he plants who plants a tree.
 -, like skies at night:
- No time to turn at Beauty's glance,
- Till evening shut her
- Over my private zoo.

10.

To flowers of May,

IV. Give complete answers to these questions. (20 marks)

1. What did the four students have to do to decide who was to do what task for a decent meal?
2. In which countries do clocks and watches play an important part in people's lives?

Say something about these lines (from your prescribed text).

3. What is the title of the unit from which this sentence is taken? What does the underlined word refer to?

"I would be able to look at the ocean every day in all of its moods."

4. Who said these words and to whom were they said? What do they mean?

"He'll get them back."

5. What do these lines mean?

He plants the friend of sun and sky;

He plants the flag of breezes free;

V. Finish each sentence in such a way that it means exactly the same as the sentence that is given. (20 marks)

1. Ko Ko said "I am having a great time. I want to come here every week."

Ko Ko said that

2. When the boys had done their homework, they went out to play.

Having

3. Why have they moved your table?

Why

4. The manager of the hotel said to me, "My staff will do their best to make sure you enjoy your stay."

The manager of the hotel told me that

5. The earrings were put on by Jane before she went to the party.

Jane

6. As the day of her wedding drew near, she became more nervous.

The nearer

7. The movie wasn't very good. We watched it last night.

The movie which

8. Who will order the students not to speak loudly in the assembly hall?

By whom

9. Don't expect to get high marks if you don't study your lessons regularly.

Without

10. Sedona is one of the most expensive hotels in Yangon.

Very few

- VI. Write an essay of three paragraphs on the following topic. (Minimum word limit 250)
(25 marks)**

“Ways to keep our environments always green”



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16 - 8 - 2019.

Time allowed: (2) hours

SECTION (A) ZOOLOGY

1. State TRUE or FALSE to the following statements. Do not copy the statements.
(10 marks)

- i. Obesity is the result of excess food.
- ii. Red blood corpuscles are termed as leucocytes.
- iii. A reflex arc involves three neurones.
- iv. The zygote formed after fertilization divides continuously into a ball of cells called embryo.
- v. Symbiotic relationships are close relationships between two of the same species.
- vi. In *Paramecium*, undigestible residues in the vacuoles are egested at the cytostome.
- vii. *Paramecium* has one organelle to perform particular vital processes.
- viii. Blood is a fluid tissue composed of fluid plasma and cells suspended in it.
- ix. Scrotum is a sac in which a testis is located.
- x. Mutualism is one of the types of symbiotic relationships.

2. Complete the following statements with appropriate words. Do not copy the statements.
(10 marks)

- i. A cell body of a consists of a nucleus and many dendrites.
- ii. Each eyeball of man is held in place in a socket in the skull by muscles.
- iii. The nervous system of mammals consists of central nervous system and a series of to link the system to all parts of the body.
- iv. Protozoans that inhabit the intestinal tract of termites digest
- v. Fungi and usually live together as lichens on rocks.
- vi. Swallowing is the moving of food from the mouth into
- vii. Fibres act as for the body.

- viii. Haemoglobin in combines with oxygen to form oxyhaemoglobin.
 - ix. Uterus is for the attachment and of the embryo.
 - x. Dentition is the and arrangement of the teeth in the skull.
3. (a) State the nature of a nerve and a synapse. (3 marks)
- (b) State the nature of commensal relationship.(Examples not essential). (3 marks)
4. (a) Compare the similarities and differences of lymphatics and veins. (4 marks)
- (b) Enumerate and explain lactation and maternal care. (4 marks)
5. (a) Give a labelled diagram of the digestive system of the rabbit and state the nature of the pancreas. (8 marks)
- (b) State what occurs at the end of inspiration and explain the formation of expiration process in lungs. (8 marks)

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)
- i. Axillary buds are also known as lateral buds.
 - ii. The ovary is the basal swollen part of the stamen in a flower.
 - iii. The coleoptile covers the radicle and coleorhiza covers the plumule.
 - iv. Photosynthesis is the process by which green plants use light energy to manufacture glucose.
 - v. ADP molecules are formed by an additions to ATP.
 - vi. Water makes up two third or more of living active protoplasm.
 - vii. Abscission is involved in leaf abscission.
 - viii. Runners have above ground horizontal stems.
 - ix. Phenotype is the genetic constitution of an organism.
 - x. Fuel when burned releases oxygen into the atmosphere.

7. Complete the following statements with appropriate words. Do not copy the statements. (10 marks)

- i. Timber obtained from ----- trunks of trees.
- ii. The flower is born on a short or long -----.
- iii. In a bean seed, the slender acute end of the embryo is the -----.
- iv. Chlorophyll absorbs light energy for the ----- change.
- v. The type of respiration in yeast is termed as ----- respiration.
- vi. Water from the soil travel upwards through the vessels of the -----.
- vii. Gravity induced ----- and water induced hydrotropism.
- viii. Plants and animals can reproduce sexually which does require -----.
- ix. Within the nucleus, there are masses of ----- called chromatin.
- x. Water cycle includes evaporation, ----- and precipitation.

8. (a) Give two reasons why dispersal of seeds is desirable. (3 marks)
- (b) Define the term phototropism. (3 marks)

9. (a) List the four stages of cell division and state what occur during interphase. (3 marks)
- (b) Provide a chart showing the classification of fruits and state the nature of composite fruits. (Diagram of composite fruit is not necessary) (5 marks)

10. (a) Describe the external structure of a bean seed supported by relevant diagrams. (8 marks)
- (b) Give precise explanation on sexual reproduction as found in plants. (8 marks)



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ATTEMPT ALL QUESTIONS.

16.8.2019

(Write down the answers on the answer book)

Time allowed: 2 hours

I. Read the passage. (15 marks)

Nearly two million species of insects grouped into about 30 orders, live in many different habitats throughout the world. They are very important because they pollinate flowers and are food for birds and other animals. However, many insects are pests that feed on crops or spread diseases. One such insect is the mosquito.

There are about 3,000 species of mosquitoes which are distinguished by their antennae of 14 or 15 segments and by their presence of scales on the veins of their wings. Their larvae are called wigglers and are aquatic feeding on plants, algae, and microscopic animal life. Some mosquitoes feed on the juices of plants, and some do not feed at all in their adult stage. Only female mosquitoes suck the blood of humans and other warm-blooded animals, because they need blood to develop each batch of fertile eggs. But like the male mosquito, females feed only on nectar for their food source.

(A) Write the correct word or words to complete each sentence.

- (1) Insectsflowers.
- (2)are the food for birds and other animals.
- (3) The mosquitoes arethat feed on crops or spread diseases.
- (4) Wigglers are.....and are aquatic.
- (5) Plants, algae and microscopic animal life are.....for wigglers.

(B) Answer each question in complete sentence.

- (6) Where can we find insects?
- (7) Why are insects very important?
- (8) How can the species of mosquitoes be distinguished?
- (9) What kind of mosquitoes suck the blood of humans?
- (10) What do male mosquitoes feed on?

II. Fill in each numbered blank with a word from the list given. (10 marks)

Some	and	for	shopkeeper	be
of	these	amounts	Most	are
which	vegetables	quick	and	totals
the	second	more	degrees	served
first	sum	still	right	there

Perishable foodstuffs and quick frozen fruit, vegetables.....1.....meat are kept in refrigerated self-serviced cabinets,.....2.....keep goods at the required temperatures. These....3.....at zero degree Fahrenheit for frozen food, 28-324.....for meat and fish, and 40-50 degrees.....5.....diary produce and provision.

The problem of6.....payment has been solved by the use7.....modern cash registers. One such machine called.....8.....Automatic Itemizing and Change Computing Cash Register,9.....records the cost of each item and10.....the bill. Then it also registers the11.....given in payment, and shoot out the.....12.....change into the cup near the customer.

.....13.....of the advantages of self-service seem to ...14....that there is no waiting to be15.....; there is a wide variety of choice,16.....it is claimed that prepacked meat and17.....are hygienic. Shopping is said to be18.... "streamlined" and more economical. Nevertheless many people ...19....prefer to be served by a small20.....who knows them personally and will deliver goods to their homes.

III. Write the appropriate words or groups of words to complete the sentences and lines of verse. (15 marks)

1. After listening to the teacher's advice, the four students did notwhat their teacher meant.
2. A water clock was a container with ain the bottom.
3. A computer can do more varied physical work if it is given
4. When times became hard John Bishop.....the earrings he bought for Jenny.
5. Ugly ladies cannot buy personaleven though they can spend money on cosmetics and dresses.
6. The four youths had to For the different tasks to get a decent meal.
7. No atmosphere the sun's rays and so temperature on the moon are extreme.
8. If computers have, they can do various kinds of physical work.
9. imply that money can make our dreams come true.
10. At times, people believed that dreams had or that they could tell the future.

11. A hewn-stone bridge
With its.....and wall;
12. For who has sight so,
That it could follow the flight of song?
13. Happy the man, whose wish and care
A fewacres bound,
14. And innocence, which most does please
With
15. And even as I
It split itself in two.

IV. Give complete answers to these questions. (20 marks)

1. What is the effect of the sudden change in temperature on the moon?
2. How do robots get help if they encounter problems at work?

Say something about these lines (from your prescribed text).

3. What is the title of the unit from which this sentence is taken? What does “its” in the sentence refer to?
"It comprises many ethnic groups, each minority group having “its” own tradition and beautiful culture.”
4. What does the following line mean?
".....no country in ASEAN can rival its centuries-old churches, with their antique religious objects."
5. What do these lines mean?
For song and mother-croon of bird
In hushed and happy twilight heard.

V. Finish each sentence in such a way that it means exactly the same as the sentence that is given. (15 marks)

1. The widow placed a bamboo pole between the dead bodies of the two lovers.
A bamboo pole
2. Have you ever been to Japan? It is one of the richest countries in the world.
Have you ever been
3. “The Mona Lisa” is such a valuable painting that it is well guarded.
“The Mona Lisa” is so

4. The moon-goddess kept the old man company and she also helped him in his work.
The moon-goddess not only
5. The other birds said, "Pheasant, why do you live with this good-for-nothing Crow?"
The other birds asked
6. Unless you have a passport, you cannot go abroad.
If
7. Ko Ko is the most sociable student in our class.
No other
8. I had just put the clothes on the line when it started to rain.
No sooner
9. When a person grows older, he becomes more forgetful.
The more
10. Every family in this street owns a television set.
There is no
11. We should learn to accept our own weaknesses and strengths.
It is
12. I was very tired. Therefore I went to bed early without having my dinner.
I was so
13. They told Zaw Zaw, "We'll be waiting to you later this week."
They told Zaw Zaw
14. U Thiha is the managing director of our company. He is a very strict person.
U Thiha, the managing director
15. All the staff members in our department are dutiful.
There

VI. Write an essay of three paragraphs on the following topic.

(Minimum word limit 250)(25 marks)

"Ways to manage our time effectively"