



Provincial Department of Education - NWP  
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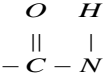
09 E I

**Second Term Test - Grade 13 - 2018**

Index No : ..... **Biology I** **Two - Hours**

**Impotent**  
**Answer All Questions**

01. The nature of a type of bond formed in bio-chemical reactim is given below.



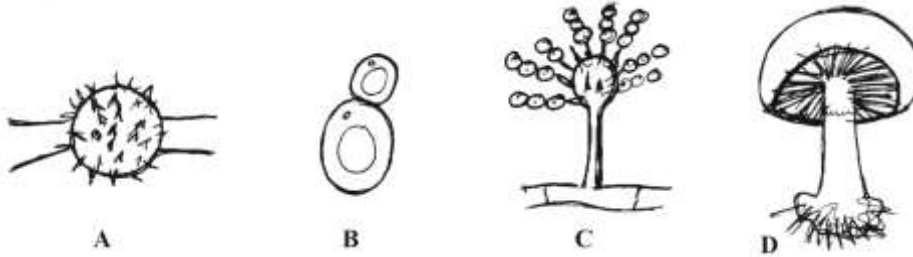
Which of the following statements regarding above bond is **incorrect**?

- 1. Can identify by biuret test
  - 2. Build up by condensation reaction
  - 3. Found only in bio polymers
  - 4. Can be hydrolyzed
  - 5. Hydrolyze reactions can be activated by enzyme called peptidase
02. Which of the following codon numbers is **correct** in providing genetic code for amino acids in protein synthesis. .
1. 64            2. 81            3. 46            4. 61            5. 16
03. Which of the following statements are **incorrect** regarding enzymes
- 1. Optimum P<sup>H</sup> level of all enzymes are same value.
  - 2. O<sub>2</sub> is non competitive inhibitor in C<sub>3</sub> mechanism
  - 3. Enzyme reaction completely cease by non reverisble inhibitors.
  - 4. Enzymes exist in the cytosol of a living cell.
  - 5. Haem groups present in cytochrome and Haemoglobin.
04. In Calvin cycle,
- 1. ATP need for reduction phase and regeneration phase.
  - 2. NADPH need for reduction phase and regeneration phase
  - 3. All reaction may occur in non Photosynthetic cells, if ATP and NADPH are present.
  - 4. The first carbohydrate produced is PGA
  - 5. End product is starch.
05. The statements regarding cyanobacteria are given below.
- a – Reproduce by sexually and asexually
  - b – No any movements because of absence of flagella.
  - c – Some live as symbionts
  - d – Perenation may be accrued by akinete. .

Which of the statements is /are not true

1. a and c    2. a and b    3. a,b and c    4. c and d    5. a,b, c,d

6. The structures in Kingdom fungi are given below.



Which of the following responses is correct regarding the structures.

1. These are associate in sexual reproduction
  2. B and C are asexual structures while only "D' form is exhibit only in sexual reproduction
  3. Basidiospores produce in gametangia of D
  4. A is diploid and can perinnate.
  5. A and D are at dicaryotic phase
07. The following table shows comparison of ovules of *cycas* and Angiosperm select the unsuitable comparison among them.

<b>Cycas ovule</b>	<b>Angiosperm ovule</b>
1. Naked	Inside the ovary
2. Posses stalk	No stalk
3. Presence of 1 integument	Presence of 2 integuments
4. Relatively large	Small
5. Large female gametophyte is in ovule	Microscopic female gametophyte is in the ovule

08. Which of the following is not important regarding evolution of seed / seed habit

1. Heterospory
2. Forming ovules
3. No liberation of megaspores from mother plants
4. Enlargement of gametophyte
5. Reducing number of megaspores up to 1

09. The statements given below depend on reptilia and avers. Which of the following characteristics common to these two phyla.

1. Complete ossification of skeleton
2. Covering of post anal tail with scales
3. Absence of larval stage
4. Being cold blooded
5. Ovoviviparous

10. Some characteristics of phylum echinodermata are given below. Select the organism that suits for the given characteristics .

- Flat body
- No arms
- Having mouth and anus at the opposite side of the body

1. Sea cucumber    2. Brittle star    3. Sea lily    4. Star fish    5. Sand dollar

11. Human stomach

1. Posses two concave curvatures
2. Possesion of three muscle layers in wall and circular muscle exist externally
3. The pylorus open up by relaxation of pyloric sphincter when stomach is at rest
4. Gastric juice secretion starts after receiving food to stomach
5. Storage and digestion are only done by stomach

12. Which of the following statements regarding hepatocytes is incorrect?

1. Synthesize of Vitamin A
2. Cuboidal epithelial cell
3. Destroying microorganisms by phagocytosis
4. Arranged as radiated pair of columns
5. Synthesizing of cholesterol

13. Same functions of vitamins important for human are given below

- a – Absorption of Ca and P from small intestine
- b – Action as an antioxidant
- c – Maintaining health in connective tissue.
- d – Forming of embryonic neural canal.

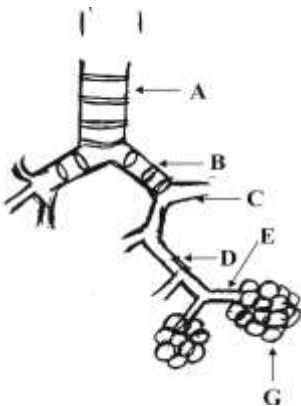
Which of the following shows sequence of vitamins that conduct above functions

1. Retinol, tocoferol, riboflavin, folic acid
2. Calciferol , tocoferol, Ascorbic acid, folic acid
3. Tocoferol, calciferol, Ascorbic acid, cynocobalamin
4. Riboflavin, calciferol, Ascorbic acid, retinol
5. Ascorbic acid, calciferol, riboflavin, retinol

14. Which of the following reason is in forming of respiratory structures in animals.

1. Increasing of area and volume ratio
2. Changing the initial structure of cells.
3. Decreasing length of transportation of respiratory gases with evolution of animals
4. Having complex and large body
5. Reducing requirements of energy.

15.



The diagram given below depicted the parts belong the respiratory system. Which of the following is **correct** regarding the diagram given

1. "A" locates in the thoracic cavity behind the esophagus
2. Cavity of "B" lined by stratified squamous epithelium
3. Respiratory gas exchange into blood through C,D,E
4. The wall of G is lined by smooth muscle
5. Secretion of surfactant by "G" at the fetal stage when it is about 35 weeks.

16. Which of the following is incorrect regarding protoplasm

1. All components inside the mature cell wall belongs to protoplasm
2. An aqueous media with solute and hydrophilic substances
3. Protoplasm has solute potential
4. The pressure exerts on the every cell walls by protoplasm
5. It has some amount of water potential.

17. Two fragments of lower epidermal tissues of *Rhoeo* were removed and dipped in two solutions named as *X* and *Y*. Solute potential of "*X*" solvent is  $-1400\text{ Kpa}$  while solute potential of *Y* is  $-1120\text{ Kpa}$ .

It was observed that 50% of cells which dipped in *X* solution was plasmolysed, at equilibrium taken place between tissues and solutions. Which of the following statements is **incorrect** regarding the above state

1. Solute potential of *Rhoeo* tissue is  $1400\text{ Kpa}$
  2. Pressure potential of fragment of tissue dipped in *Y* solvent is " $0$ " *Kpa* at equilibrium.
  3. Pressure potential of fragment of tissue dipped in *X* solvent is  $0\text{ Kpa}$  at equilibrium
  4. Tissue involve in endosmosis while it is in *Y* solvent
  5. Solute potential of *X* and *Y* solutions is  $0\text{ Kpa}$
18. Which of the following statements is incorrect regarding gas exchange in plant
1. Main gas exchange surface is leaves
  2. Gas exchange in plants take place only through stomata
  3. Opening and closing of stomata occur due to change of turgor in guard cells
  4.  $K^+$  concentration increases in guard cells when light is present
  5. The wall of guard cells are thicken unevenly
19. A step is not followed in arranging potometers is,
1. Keeping continuous water column in the potometer
  2. Closing the tap in water reservoir
  3. Cutting of branch under water and fix the shoot into potometer at the out side
  4. Keeping capillary tube horizontally
  5. Inserting the end of capillary tube in water container
20. Which of the following organisms exhibits double fertilization without having a ventral heart.
1. Shark
  2. Salamander
  3. Squid
  4. Cockroach
  5. Whale
21. Which of the following is correct regarding human blood
1. Three millions of red blood cells present in  $1\text{ mm}^3$  of blood.
  2. Albumin and fibrinogen are important for viscosity of blood plasma
  3. Hemoglobin content of a healthy adult woman is  $11.5 - 16.5$  gram per  $1\text{ml}$  of blood
  4. The abundant white blood cells in human blood is monocyte
  5. Life span of platelets is about  $20 - 25$  days.
22. Select the **incorrect** statement,
1. Speed of heart beat of a healthy adult is  $72$  times per minute
  2. Respiratory movements are important in flowing blood to the heart through veins
  3. 3 regions of aorta can be identified over the diaphragm muscle
  4. Rate of heart beat increases when increase of  $CO_2$  partial pressure in the blood.
  5. Blood flows from cardiac muscles to the heart only through pulmonary sinuses
23. In coordination of hormones
1. Reponse is targeted
  2. Reponse is quick
  3. Definite path is available for transmission
  4. Responses are irreversible
  5. No coordination between response and stimulus

24. The three statements regarding human nerve cord are given below.  
 a – Belong to peripheral nervous system  
 b – Grey matter is inside while white matter is outside  
 c – Important only in transmitting information between brain and body  
 Which of the statements given is **incorrect**,
1. Only a
  2. Only a and c
  3. Only a and b
  4. b and c only
  5. a,b,c are incorrect
25. Which of the followings incorrect regarding human pituitary and its activities
1. It is the main endocrine gland
  2. Anterior pituitary posses glandular epithelium
  3. Attach to the hypothalamus by a short stalk
  4. Secretion of GH is controlled only by a negative feed back mechanism
  5. Posterior pituitary is nervous origin
26. Which of the following function – hormone is correctly paired.
1. Expansion of pupil - cortisol
  2. Regulate carbohydrate, protein and Lipid metabolism – Thyroxin
  3. Maintain corpus albicans during early pregnancy – LH
  4. Decreases reabsorption of ca from nephrons – parathormone
  5. Decrease blood glucose level – Glucagon
27. Select the correct statement regarding mechanoreceptors,
1. Found only in the skin
  2. Free nerve endings are not mechanoreceptors
  3. Sensitive to repressure in touch, tension of the body.
  4. Organ of corti is a vibration receptor
  5. Pacinian corpuscles which is mechanoreceptor is attached to hairs
28. Which of the following is an event that does not occur when body temperature decreases.
1. Stimulation of free nerve endings and ruffini corpuscles.
  2. Expansion of shunt vessels
  3. Increase oxidation of fat in the liver
  4. Increase of production of thyroxin
  5. Contraction of papillary erector muscle
29. Select the incorrect statement regarding sacrum and coccyx
1. Sacrum consist fire vertebrae and triangular in shape
  2. Vertebral body are present and on each side of the bone, there is a series of foremen, in sacrum
  3. Anterior surface of sacrum is concave
  4. Both sacrum and cocyx articulate with pelvic girdle
  5. Coccyx represent vestigial tail of man
30. Select the organism which consist following fealvres
- Unisexual
  - Produce gametes by mitosis
  - Internal fertilization occur
1. Earthworm
  2. Man
  3. *Cycas*
  4. *Hibiscus*
  5. *Fasciola*

31. Select the incorrect statement regarding human spermatogenesis.
1. It takes about 72 days
  2. It starts at puberty
  3. Stimulate by FSH
  4. If spermatogenesis proceeds too rapidly, Inhibin is released from sertoli cells, which reduce the secretion of LH
  5. Each secondary spermatocyte complete the second stage of meiosis division and forms spermatid
32. Human immuno deficiency virus,
1. DNA virus
  2. Retro virus
  3. Transmit due to contact
  4. Do not transmit from mother to foetus
  5. Cause itchy, painful sores around genital area.
33. Which one of the following feature mis match in the life cycle of angiosperm and life cycle of *Cycas*.
- | Angiosperm    | Cycas              |
|---------------|--------------------|
| 1. Filament   | Microsporophyll    |
| 2. Endosperm  | endosperm          |
| 3. Carpel     | Megasporophyll     |
| 4. Embryo sac | Female gametophyte |
| 5. Ovule      | Ovule              |
34. Plant with homozygous purple color flower and yellow color seeds is crossed with homozygous white color flowers and green color seed plant. All F<sub>1</sub> plants are purple color flowers and yellow color seeds. When F<sub>1</sub> is testcrossed following results were obtained
- |                               |      |     |
|-------------------------------|------|-----|
| • Purple flower, Yellow seeds | - 82 | - 4 |
| • Purple flower, Green Seeds  | - 22 | - 1 |
| • White flower, Yellow Seeds  | - 18 | - 1 |
| • White flowers, Green Seeds  | - 78 | - 4 |
- Which of the following conclusions is incorrect regarding above cross.
1. Factors were segregated independently
  2. Purple flowers, yellow seeds are dominant alleles
  3. This is an example for incomplete linkage
  4. Distance of the allele of purple color flowers yellow seeds is 20 map units
  5. The offspring with purple colour flower and yellow seed is heterozygous for trait.
35. In a human population where there is no migration a recessive allele a pancreatic disease. Frequency of healthy people is 84% find the frequency of disease people of that population
1. 36 %
  2. 48%
  3. 46%
  4. 24 %
  5. 20 %
36. To identify parents of a baby, DNA finger printing was used. Which part of the DNA was used for the above.
1. Composition of nucleotides
  2. Length of homozygous chromosomes
  3. Selected similar base sequence
  4. Number of DNA probes
  6. Length of DNA
37. Which of the following is incorrect regarding layers of the atmosphere
1. The water vapor important for weather is in troposphere.
  2. Lowerst temperature is found in upper part of the mesosphere
  3. Ozone layer is found in stratosphere.
  4. Temperature increases to 0<sup>0</sup> C in the upper part of the stratosphere
  5. Lower layer of the troposphere consist equilibrium condition



45. Select correct statement / statements regarding photochemical smog
- It occurs due to smoke and fog
  - Hydrocarbons are only reason for the photochemical smog
  - It cause respiratory disorders
  - Condition occured in an urban areas where more automobiles are present.
  - Common situation occurs in tropical countries
46. Select incorrect statement / statements regarding phototropic responses
- Whole organism respond towards the stimulus
  - Reversible movement
  - There is a connection between the stimulus and the response
  - Auxins are involve
  - Growth movement
47. Select the correct statement / statements
- During pollination always pollen deposit in the stigma
  - Self sterility enhance cross pollination
  - Grapes show parthenocarpy in naturally
  - Gibberellin activates enzymes in seed germination
  - IBA is the common natural auxin
48. Select incorrect statement / statements regarding excretion of man
- main nitrogenous excretory product is urea
  - Bilirubin is produced in the liver cells
  - In muscle cells creatinine is produced by breakdown of creatine.
  - $HCO_3^-$  is not present in composition of urine
  - $H_2O$  is not an excretory product
49. Select the correct combination / combinations of microorganism and their toxins
- |                                       |   |             |
|---------------------------------------|---|-------------|
| A. <i>Clostridium botulinum</i>       | - | Neurotoxin  |
| B. <i>Corynebacterium diphtheriae</i> | - | Enterotoxin |
| C. <i>Shigella dysenteriae</i>        | - | Neurotoxin  |
| D. <i>Staphylococcus aureus</i>       | - | Enterotoxin |
| E. <i>Clostridium tetani</i>          | - | Cytotoxin   |
50. Which of the following / followings are not cause for global warming
- Green house effect
  - $CO_2$  gas in the atmosphere
  - $SO_2$  gas
  - $O_2$  gas
  - water vapour





iv. Write two events occur in the cell during Y phase

.....  
.....

v. Identify "A" in the X diagram? Write the importance of it

.....  
.....  
.....

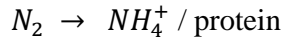
B). i. Name two groups belong to Domain Bacteria

.....  
.....

ii. Write 2 features used to differentiate the above two groups

.....  
.....

iii. Important Bio chemical reaction is given below.



Write two free living organisms which belong to groups above (I) which carried on the above bio chemical reaction and write the mode of nutrition of the organisms

Organism

Mode of nutrition

1	.....	.....
2	.....	.....

iv.



Identify the above organisms and write the answers.

a) Organism / organisms which absence of flagella in gametes

.....

b) Organism / organisms which presence of fucoxanthin

.....

c) Organism /Organisms that presence of chlorophyll which are similar to plants

.....

d) Write the nature of the lipids in cell membrane in this organisms

.....

v. a) What is lateral line?

.....  
.....

b) Write 3 classes with lateral line?

.....

C). The following steps were used by a student to identify microorganisms (Bacteria) in yoghurt using stains

- Dry clean glass slide was taken and put 1-2 drops of distilled water on to it by using a sterilize inoculating loop. Then by using the sterilize inoculating loop small amount of yoghurt was scraped and put on the water drops and made the smear by spreading it in a circularly.

i. Write the next steps of this process in sequence

.....  
.....  
.....  
.....  
.....

ii. Write the method of sterilizing of the inoculating loop

.....  
.....  
.....

iii. What is the reason of using stains?

.....  
.....  
.....

iv. a) What is the method he used to remove excess stains

.....  
.....

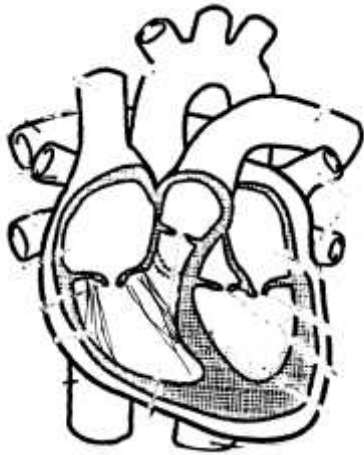
b) Write the type of objective lens of the light microscope use to observe this organisms.

.....

v. Which of the above step (C) is not needed when staining bacteria smear in toddy.

.....  
.....

02). A).



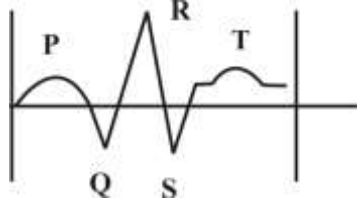
i. Name the following parts in the givens of human heart

- a) Semilunar valves
- b) Papillary muscles
- c) Left pulmonary artery
- d) Inferior venacava
- e) Bicuspid Valve
- f) Auricular septem

ii. State the action of valves during the events of the cardiac cycle.

- a) Contraction of Atria .....
- b) Contraction of ventricles .....
- c) Relaxation of atria and ventricles .....

iii.



ECG is given below. during QRS pattern which valves in the heart get closed

.....  
.....

iv. Write the importance of E,C,G

.....

v. Write a structural and functional feature of the muscle involve for the function of heart

Functional .....

Structural.....

B). i. Write the part of the brain which regulates the rate and force of the heartbeat.

.....

ii. Write the location of the above mentioned part.

.....  
.....

iii. State 2 other functions control by above mention part (i)

.....  
.....

iv. Write the part of the brain which regulate / control followings and write structural feature of it.

	<b>Part of the brain</b>	<b>Structural feature</b>
a) Reflex movements of the eye muscles	.....	.....
b) Integrates sensory information & relays it to the higher centres of the brain	.....	.....

v. a) Write parts of the eye which involving in accommodation of eye.

.....  
.....

b) State how accommodation of eye occur when observing an object beyond 6 m

.....  
.....

C). i. How many bones are in the bony structure that covers the human brain ?

.....

ii. What is the bone that is not paired and not having sinuses.

.....

iii. Name a main process and the importance of the of the process of bone. You stated II above.

Process .....

Importance .....

iv. Write a structural similarity of the bones that covered the brain and *pelvic bone*

.....  
.....  
.....

v. a) What are the bones belong to human pelvis

.....  
.....  
.....

b) State two characteristics of female pelvis that are important in parturition.

.....  
.....

03). A). i. Plants converts solar energy into chemical chergy. Answer the questions below regarding the process stated above

a) State the organelle that carryout above process

.....

b) Name the organic compounds that build up the organelle stated (a) above

.....  
.....  
.....  
.....

ii. Name the compound that use for absorbing solar energy

.....  
.....

iii. Write two physiological adaptations that exists in plant to success this production effectively.

.....  
.....

iv. State how  $C_4$  plant are efficient in fixation of  $CO_2$  . write 2 reasons for that.

.....  
.....

v. Write the sequential order of moving of glucose molecule produced in  $C_4$  plant by photo synthesis to cortical cells.

.....  
.....

B). i. Define human saliva

.....  
.....  
.....

ii. Write two functions of saliva that is not associated in digestion of food

.....  
.....

iii. State the largest salivary gland and the location of it.

Gland .....

.....

Location .....

.....

iv. State how secretion of saliva is controlled?

.....

.....

.....

v. What are the main parts of the system that associate in controlling the secretion of saliva?

.....

.....

.....

C). i. The table given below associates in growth substances of plants. Put ( ✓ ) mark in the relevant cages.

	<b>Charactenstres</b>	<b>Auxin</b>	<b>Cytokinin</b>	<b>Giberelin</b>	<b>Absciscic Acid</b>	<b>Ethylene</b>
1	Stimulation of elongation of stem					
2	Parthenogenesis					
3	Transportation through xylem					
4	Delaying of senescence					
5	Inhibition of cambial activity					

ii. What is the process takes place at human fertilization? name the / location it occurs

Process .....

.....

Location .....

.....

iii. Implantation takes place after fertilization. Draw the labelled diagram to represent the implanted structure

- iv. Name the non – hormonal chemical which important in parturition.  
 .....
- v. A yellow colour secretion with pus from genitourinary tract of a certain person discharge. What type of disease does he suffer? State the pathogen and the major way of transmission of it?
- Disease .....
- Pathogen .....
- Mode of transmission.....

04). A). i. Suggest a suitable words to define following situation

- a) Elephants in yala national park in 2018 .....
- b) Fishes in Parakrama Samudraya .....
- c) Single organism of *Homo Sapiens* .....

ii. What are the necessities which fulfil to be a fish tank in a house to be an ecosystem.

.....

.....

.....

iii. The following specimen are found by a student at his home garden

- Plant *Nephrolepis*
- Earth worm
- Millipede
- Cuscuta
- Snail

- a) Write a primary producer in a list given above .....
- b) Write an organisms which can include in 2<sup>nd</sup> trophic level.....
- c) Which are the decomposers in this list? .....
- d) Name an organism which exhibits symbiosis .....

iv. What type of association you stated above (d) is? define it.

.....

v. State the respiratory structure of millipede, earth warm and snail

- Millipede .....
- Earth worm .....
- Snail .....

vi. Write a special feature of the external shell that the class of snail belongs.

.....



B). i. What is IUCN red date book?

.....  
.....  
.....

ii. State the different categories according to the IUCN red data book.

a) *Melonochelus trijuga* .....

b) *Alphonsea hortensis* .....

c) *Chloroxylon swietenia* .....

iii. The botanical garden are established under brodiversity conservation and state the methodology followed in this process

.....  
.....  
.....  
.....

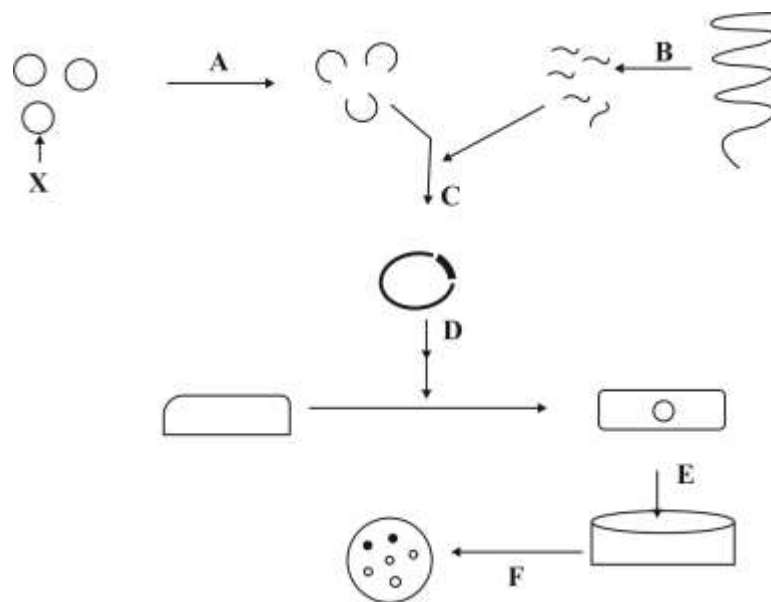
iv. Define hybrid vigour

.....  
.....

v. Write how polyploidy differ from their parental plants?

.....  
.....  
.....

C). i. The following diagram indicates the steps of cloning a gene from eucaryotes in *Escherichia Coli* bacteria.



Name the steps from A - F

- A. ....
- B. ....
- C. ....
- D. ....
- E. ....
- F. ....

ii. Write a special characteristic of "x"

.....  
.....  
.....

iii. Name two important proteins produced in medical field using above technology.

.....  
.....

iv. State two problems occurred due to organisms produced in the above technology.

.....  
.....

v. What is the name of method of this technology when it use in forensic medicine.

.....

## Second Term Test - 2018

### Grade 13 - Biology - II

#### Part B Essay

❖ Answer only four Questions.

- 05). i. Describe the mechanism of protein synthesis occurred in the nucleus  
ii. Briefly explain the various types of mutations in organisms using examples.
- 06). i. Describe briefly global importance of photosynthesis.  
ii. Describe how an experimental set up is arranged to determine the rate of photosynthesis according to volume of oxygen which emits according to changing of light intensity.  
iii. Write a list of adaptations exhibited by plants to reduce transpiration.
- 07). i. State the location of human liver and explain the structure of liver lobule  
ii. Briefly describe how a glucose molecule which absorbed from the small intestine is converted in to pyruvate molecules in liver cells.
- 08). i. Explain gross structure of large part of the brain which derived from embryonic forebrain  
ii. Name the part of the brain that regulate the human body temperature and list out other functions of it.
- 09). i. List out different types of ecosystems in Sri Lanka.  
ii. State the location and characteristic features of dry mixed evergreen forests in Sri Lanka  
iii. Briefly describe main features of the conventions and acts related to conservation of Biodiversity
- 10). Write Short notes on,  
i. Selective reabsorption  
ii. Prions  
iii. Locomotion and types of locomotary movement of organisms