Reg. No. : .....

Name : .....

SY-526

SECOND YEAR HIGHER SECONDARY EXAMINATION, MARCH 2023

Part – III

BIOLOGY

(Botany & Zoology)

Maximum : 60 Scores

Time : 2 Hours

Cool-off time : 15 Minutes

Preparatory Time : 10 Minutes

General Instructions to Candidates :

- There is a 'Cool-off time' of 15 minutes in addition to the writing time. Further there is a '10 minutes' 'Preparatory Time' at the end of the Botany Examination and before the commencement of Zoology Examination.
- Use the 'Cool-off time' to get familiar with questions and to plan your answers.
- Read questions carefully before answering.
- Read the instructions carefully.
- Calculations, figures and graphs should be shown in the answer sheet itself.
- Malayalam version of the questions is also provided.
- Give equations wherever necessary.
- Electronic devices except non-programmable calculators are not allowed in the Examination Hall.

വിദ്യാർത്ഥികൾക്കുള്ള പൊതുനിർദ്ദേശങ്ങൾ :

- നിർദ്ദിഷ്ട സമയത്തിന് പുറമെ 15 മിനിറ്റ് 'കൂൾ ഓഫ് ടൈം' ഉണ്ടായിരിക്കും. കൂടാതെ ബോട്ടണി പരീക്ഷയ്ക്കുശേഷം സുവോളജി പരീക്ഷ തുടങ്ങുന്നതിനുമുമ്പ് '10 മിനിറ്റ്' തയ്യാറെടുപ്പുകൾ നടത്തുന്നതിനായി നല്കുന്നതാണ്. ഈ വേളകളിൽ ചോദ്യങ്ങൾക്ക് ഉത്തരം എഴുതാനോ, മറ്റുള്ളവരുമായി ആശയ വിനിമയം നടത്താനോ പാടില്ല.
- 'കൂൾ ഓഫ് ടൈം' ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ഉപയോഗിക്കുക.
- ഉത്തരങ്ങൾ എഴുതുന്നതിന് മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- നിർദ്ദേശങ്ങൾ മുഴുവനും ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- കണക്ക് കൂട്ടലുകൾ, ചിത്രങ്ങൾ, ഗ്രാഫുകൾ, എന്നിവ ഉത്തരപേപ്പറിൽ തന്നെ ഉണ്ടായിരിക്കണം.
- ചോദ്യങ്ങൾ മലയാളത്തിലും നല്കിയിട്ടുണ്ട്.
- ആവശ്യമുള്ള സ്ഥലത്ത് സമവാക്യങ്ങൾ കൊടുക്കണം.
- പ്രോഗ്രാമുകൾ ചെയ്യാനാകാത്ത കാൽക്കുലേറ്ററുകൾ ഒഴികെയുള്ള ഒരു ഇലക്ട്രോണിക് ഉപകരണവും പരീക്ഷാഹാളിൽ ഉപയോഗിക്കുവാൻ പാടില്ല.

PART – B

ZOOLOGY

(Maximum : 30 Scores) **Time : 1 Hour**

I. Answer any three questions from 1 to 5. Each carries 1 score. $(3 \times 1 = 3)$

1. Select the odd one. Justify your selection.

   (Rete testis, Vasa efferentia, Fallopian tube, Vas deferens)

2. Write the Central dogma in Molecular biology.

3. Which microbe is called baker's yeast ?

   (A) Propionibacterium sharmanii

   (B) Lacto bacillus

   (C) Saccharomyces cerevisiae

   (D) Aspergillus niger

4. Pick out the correct pair of disease and its pathogen :

   (A) Filaria – Rhino virus

   (B) Typhoid – Streptococcus

   (C) Malaria – Plasmodium

   (D) Ascariasis – Entamoeba

5. Identify two ex-situ conservation approaches of organisms from the following list :

(Zoological Park, Biosphere Reserve, National Park, Botanical Garden)

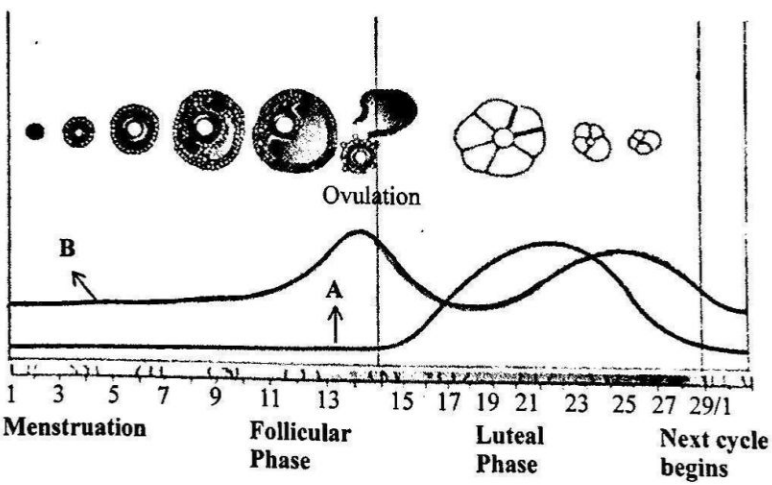
II. Answer any 9 questions from 6 to 16. Each carries 2 scores. **(9 × 2 = 18)**

6. Placenta also act as an endocrine tissue and produce several hormones.

(A) Name any two placental hormones.

(B) Write two functions of Placenta. (other than endocrine function)

7. The graph given below shows the ovarian events and ovarian hormone levels during menstrual cycle.



(i) Name hormones A and B.

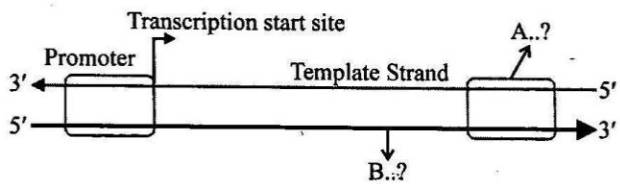
(ii) Write the ovarian events during luteal phase.

8. What are IUDs ? Name one copper releasing and one hormone releasing IUDs.

9. Match the following :

Genetic Disorders	Genetic Reasons
Klinefelter's syndrome	21st Trisomy
Down's syndrome	Lack of one 'X' chromosome in females (XO)
Turner's syndrome	Due to autosomal recessive trait
Phenylketonuria	Presence of an extra X chromosome in males (XXY)

10. Schematic representation of a transcription unit is given :



(i) Fill up the missing parts A and B.

(ii) Write the role of template strand in transcription.

11. (A) Define Analogous organs.

(B) Identify analogous organs from the given examples :

(i) Eyes of octopus and mammals

(ii) Vertebrate hearts

(iii) Wings of butterfly and bird

(iv) Forelimbs of Cheetah and Human

12. Using the given terms in brackets, complete the following evolutionary stages of man :

(Homo sapiens, Homo habilis, Homo erectus, Australopithecines)

Dryopithecus

↓

Ramapithecus

↓

_____A

↓

_____B

↓

_____C

↓

Neanderthal man

↓

_____D

13. Differentiate between Active immunity and Passive immunity.

14. SAY YES TO LIFE NO TO DRUGS

Write some important measures that would be useful for the prevention and control of alcohol and drug abuse among adolescents.

(Write relevant four points)

15. Two bioactive molecules are given :

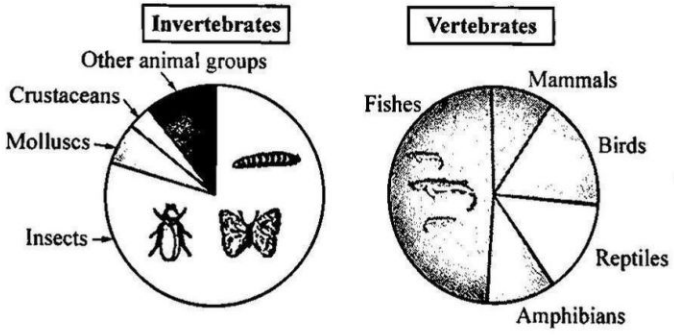
(i) Cyclosporin-A

(ii) Streptokinase

(A) Name the microbe which produces these bioactive molecules.

(B) Write its use.

16. A figure showing the global biodiversity of invertebrates and vertebrates are given :



(A) Identify the most diverse groups of vertebrates and invertebrates.

(B) What are the three important levels of biodiversity ?

III. Answer any three questions from 17 to 20. Each carries 3 scores. **(3 × 3 = 9)**

17. (A) What are STIs ?

(B) Give two examples.

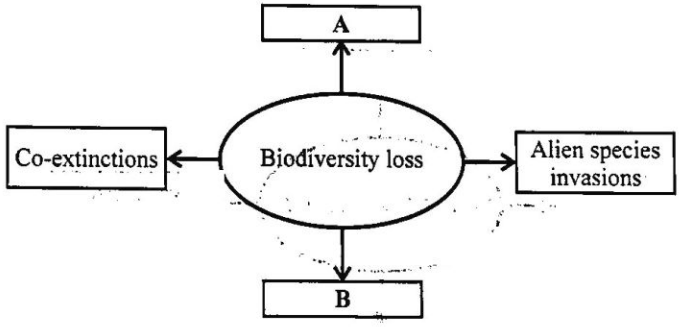
(C) Write any two preventive measures of STIs.

18. Cross between Red flower (RR) and white flower (rr) bearing plants of Snapdragon produced all plants with pink flowers in F_1 generation.

(A) Name the genetic phenomenon of this cross.

(B) Illustrate F_2 generation of this cross using Punnet square.

19. The given illustration shows 'Evil Quartet' of biodiversity loss :



(i) Fill up 'A' and 'B'.

(ii) Explain Co-extinction and Alien species invasion with suitable examples.

20. Explain the transformation experiments performed by Frederick Griffith with bacteria Streptococcus Pneumoniae.