FEDERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION
H-8/4, ISLAMABAD

NO.3-29/FBISE/RES/𝔖𝟥𝟦   c𝟪May 2018

NOTIFICATION

In continuation of this office Notification No.0-9/FBISE/RES/CC/HSSC/725 dated 5 April 2017 (Computer Science) & No.1-6/FBISE/RES/CC/HSSC/1033 dated 19 May 2017 (Biology), revised curriculum 2009 in the subjects of Computer Science and 2006 in the subject of Biology at HSSC Part-II level is implemented w.e.f. the academic year 2018-2019 and onwards. Accordingly, the students to be promoted in Class-XII in the year 2018 will be examined in accordance with the revised curriculums in HSSC Part-II annual examination 2019.

2.   The books to be published by National Book Foundation, Islamabad for Computer Science "Textbook of COMPUTER SCIENCE GRADE 12" and for Biology "Textbook of BIOLOGY GRADE 12" are hereby prescribed as textbooks. However, any other book in consonance with the contents of syllabus can also be consulted.

3.   Contents of syllabus in the said subjects for Class-XII are enclosed herewith and also being uploaded on the FBISE's website www.fbise.edu.pk for the benefit of all stakeholders. Model question paper will be notified shortly.

(ZULFIQAR ALI RIZVI)
Director Research
Ph: 051-9269504
director@fbise.edu.pk

All heads of institutions affiliated
with FBISE at HSSC level

Copy to:

1.   Director General, Federal Directorate of Education, G-9/4, Islamabad
2.   Director Education, FGEI (C&G), Sir Syed Road, The Mall, Rawalpindi Cantt
3.   Director Education (Schools/Colleges), PAF Rear Air HQs, Peshawar Cantt
4.   Director Education, Directorate of Naval Educational Services, Naval HQ, Islamabad
5.   Director, Army Public Schools and Colleges System Secretariat, GHQ, Rawalpindi
6.   Director, CB Education Directorate, C/o Chaklala Cantonment Board, Opp: Health Ways Laboratory, Murre Road, Rawalpindi
7.   General Manager (Education), Fauji Foundation Head Office, Welfare Division, Chaklala, Rawalpindi
8.   Director Education, OPF Head Office, F-5, Islamabad
9.   Secretary, National Book Foundation, Taleemi Chowk, G-8/4, Islamabad
10.   Incharge, Website FBISE, Islamabad
11.   Incharge, FBISE Sub-Office, Gilgit
12.   All Sectional Heads of FBISE, Islamabad
13.   Chat Room, FBISE

COMPUTER SCIENCE
For Class-XII

COMPUTER SCIENCE HSSC (2009 NBF)
LIST OF COMPOSITE PRACTICALS

COMPUTER HARDWARE
- Identification of Input devices, Output devices, Processing devices, Communication devices.
- Identification of various parts of the Motherboard (Ports, Slots, Buses, CPU, Power supply, etc.)
- Identification of various types of memories (RAM, ROM, Cache).
- Identification of various types of secondary storage devices (HD, CD, DVD, Flash memory, Memory card, Blue ray(BD) disk, SSD, etc.).
- Identification of network devices (Router, NIC, Cables, Switch/hub)

MICROSOFT ACCESS 2007
- Starting Microsoft Access
- Creating Tables, Assigning Primary key to the Table, Saving the Table
- Adding Records to a Table, Modifying Records in a Table, Deleting Records from a Table
- Modifying Records in a Table, Deleting Records from a Table
- Creating Relationships between tables
- Creating Queries
- Viewing/Running Query, Modifying Query, Adding a Calculating Column/Field to a Query
- Creating Queries using Query Design
- Creating and Running a Data Entry Form, Making Forms More Usable with Controls
- Creating Form with Sub-Form for Related Tables, Creating a Switchboard Form
- Generating Reports, Creating a Report using a Query

C++ PROGRAMMING LANGUAGE
Programs in C++ related to the following topics.
- Input/Output statements/functions
- Operators
- Decision control structure – if()
- Looping control structure – for(), while(), do-while()
- Arrays – One dimensional, two dimensional
- Strings
- Functions
- Pointers
- Objects and Classes
- File handling

Note: The scope/level of programming can be followed as given in the Textbook of Computer Science for XII (Published by NBF).

BIOLOGY
For Class-XII

14. RESPIRATION
- 14.1 Respiratory System of Man
  - 14.1.1 Air Passage Way and Lungs
  - 14.1.2 Mechanism of Breathing
  - 14.1.3 Respiratory Volumes
  - 14.1.4 Transport of Gases (Transport of Oxygen and Carbon dioxide)
- 14.2 Respiratory Disorders
  - 14.2.1 Upper Respiratory Infections (Sinusitis, Otitis Media)
  - 14.2.2 Lower Respiratory Infections and Disorders (Pneumonia, Emphysema, Pulmonary Tuberculosis, Lung Cancer)

15. HOMEOSTASIS
- 15.1 Osmoregulation (in Freshwater, Marine and Terrestrial Environments)
- 15.2 Excretion
  - 15.2.1 Relationship between Excretory Products and Habitat
- 15.3 Excretory System of Man
  - 15.3.1 Structure and Function of Kidney
- 15.4 Disorders of Urinary Tract
  - 15.4.1 Urinary Tract Infections
  - 15.4.2 Kidney Stones (Causes and Treatments)
  - 15.4.3 Kidney Failure (Causes and Treatments)
    - 15.4.3.1 Dialysis; Mechanism and Problems
    - 15.4.3.2 Kidney Transplant; Process and Problems
- 15.5 Thermoregulation

16. SUPPORT AND MOVEMENT
- 16.1 Human Skeleton (Axial Skeleton, Appendicular Skeleton, Types of Joints)
- 16.2 Disorders of Skeleton (Disc slip, Spondylosis, Sciatica, Arthritis, Bone Fractures)
- 16.3 Muscles (Smooth Muscles, Cardiac Muscles and Skeletal Muscles)
  - 16.3.1 Ultra-structure of Skeletal Muscles
  - 16.3.2 Antagonistic Arrangement of Skeletal Muscles
  - 16.3.3 Muscle Contraction - Sliding Filament Model

17. NERVOUS COORDINATION
- 17.1 Nervous System of Man
  - 17.1.1 Steps involved in nervous coordination
  - 17.1.2 Neurons (Structure and Types)
  - 17.1.3 Nerve Impulse
  - 17.1.4 Transmission of Action Potential between Cells – Synapse
  - 17.1.5 Basic Organization of human nervous system (CNS and PNS)
  - 17.1.6 Sensory Receptors and their working (Receptors for Smell, Tastes and Touch, Pain etc)
- 17.2 Effects of Drugs on Nervous Coordination (Effects of Heroine, Nicotine, Caffeine, Alcohol and inhalants – Nail polish remover and Glue)
- 17.3 Disorders of Nervous System
  - 17.3.1 Vascular Disorders (Stroke, Hematoma)
  - 17.3.2 Infections (Meningitis, Encephalitis)
  - 17.3.3 Structural Disorders (Brain or Spinal Cord Injury, Brain or Spinal Cord Tumors)
  - 17.3.4 Functional Disorders (Headache, Epilepsy, Neuralgia)
  - 17.3.5 Degenerative Disorders (Parkinson's Disease, Multiple Sclerosis, Huntington's Disease, Alzheimer's Disease)
  - 17.3.6 Diagnostic Tests for Nervous Disorders (EEG, CT Scan and MRI)

18. CHEMICAL COORDINATION
- 18.1 Hormones- The chemical messengers
- 18.2 Endocrine System of Man (Glands with location, secretions and imbalance)
  - 18.2.1 Pituitary gland and the Role of Hypothalamus
  - 18.2.2 Thyroid
  - 18.2.3 Parathyroid
  - 18.2.4 Pancreas
  - 18.2.5 Adrenal
  - 18.2.6 Gonads
  - 18.2.7 Other Endocrine Tissues / Cells
- 18.3 Feedback Mechanism

19. BEHAVIOR
- 19.1 The nature of Behavior
- 19.2 Innate Behavior
- 19.3 Learning
- 19.4 Social Behavior

20. REPRODUCTION
- 20.1 Reproductive System of Man
  - 20.1.1 Male Reproductive System and its Hormonal Regulation
  - 20.1.2 Female Reproductive System and its Hormonal Regulation
- 20.2 Disorders of Reproductive System (Infertility, Imbalance of Male Sex Hormones)
- 20.3 Sexually Transmitted Diseases (Syphilis, Gonorrhea, AIDS)

21. DEVELOPMENT AND AGING
- 21.1 Embryonic Development (Cleavage, Gastrulation, Neurulation)
- 21.2 Control of Development (Role of Nucleus, Cytoplasm and Neighboring cells)
- 21.3 Human Embryonic Development
- 21.4 Birth and Nursing
- 21.5 Disorders during Embryonic Development
- 21.6 Postnatal Development
- 21.7 Aging

22. INHERITANCE
- 22.1 Law of Independent Assortment
  - 22.1.1 Probabilities
- 22.2 Incomplete Dominance, Multiple Alleles and Co-dominance
- 22.3 ABO Blood Group System
- 22.4 Rh Blood Group System and *Erythroblastosis foetalis*
- 22.5 Polygenic Inheritance and Epistasis
- 22.6 Gene Linkage and Crossing Over
- 22.7 Sex Determination (XX-XY System, ZW-ZZ System and XX-XO System)
- 22.8 Sex Linkage
  - 22.8.1 Sex Linkage in Drosophila and Man
  - 22.8.2 X-linked Disorders – Color Blindness, Hemophilia, Muscular Dystrophy
  - 22.8.3 Sex-limited and Sex-Influenced Traits

23. CHROMOSOME AND DNA
- 23.1 Chromosomal Theory of Inheritance
- 23.2 DNA as the Hereditary Material
- 23.3 DNA Replication
  - 23.3.1 Meselson and Stahl Experiment
  - 23.3.2 Mechanism of DNA Replication

BIOLOGY HSSC (2006 NBF)
LIST OF COMPOSITE PRACTICALS

1. Use of graticule and micrometer to study cells (Amoeba, Euglena, Paramecium)
2. Preparation and examination of the slides of animal and plant cells using differential staining
3. Performing Benedict's test for reducing sugars and confirmation of the presence of starch through Iodine test
4. Confirmation of the presence of proteins through Biuret test
5. Confirmation of the presence of lipids through Emulsion test
6. Performance of chemical test to demonstrate that enzymes are proteins
7. Extraction of the leaf pigments and their separation by paper chromatography
8. Identification of bacteria from prepared slides for different shapes and sizes
9. Study of Nostoc from fresh or preserved material
10. Observation and drawing of representative members of each group of protists
11. Observation and drawing labeled diagrams of the life cycle of black bread mold from fresh culture and prepared slides.
12. Identification of the vegetative and reproductive structures of *Funaria* by examining the fresh or preserved material
13. Identification of the vegetative and reproductive structures of a local fern and a *Pinus* and relate them with the concerned life cycles
14. Describing the flowers of Rose, *Cassia fistula, Solanum nigrum* and *Avena sativa*
15. Classifying the given invertebrates into phyla and given chordates into classes by using classification key
16. Demonstration of the evolution of CO_2 from leaf discs placed in dark and light, with the help of indicator (hydrogen carbonate)
17. Microscopic observation of the slide of TS of a dicot stem, identifying and drawing vessel element, vessel, and phloem sieve tubes.
18. Demonstration of phototropism, geotropism and thigmotropism in plants
19. Microscopic observation of the villi, liver and pancreas from prepared slides
20. Identification of the phases of heartbeat on a printed ECG.
21. Dissection of the heart of a mammal and describing its internal structure
22. Differentiation of an artery and a vein by observing prepared slides
23. Measuring blood pressure by using sphygmomanometer
24. Recognizing phagocytes and lymphocytes while observing prepared slides
25. Identification of different parts of the respiratory and reproductive system of a dissected frog (dissection would be done by the teacher)
26. Identification of the bones of the pelvic girdles, pectoral girdle, arms and legs by using the model of human skeleton
27. Comparison of the structure of skeletal, smooth and cardiac muscles with the help of prepared slides. Preparation of skeletal muscle slide.
28. Identification of the different stages in chick development through observation of prepared slides (48 hours and 72 hours).
29. Calculation of probability by using the dice to calculate how many times out of 100 throws can students get sixes
30. Data collection from the class to see how many individuals have AB blood group and construction of a pie chart and histogram for the collected data
31. Testing of blood group using Antisera and performing agglutination reaction for Rh factor