Q.1. (i) Select the best option/answer and fill in the appropriate Circle on the OMR Answer Sheet. (50x1=50)

PART-I ((MCQs)(COMPULSORY))

1. Who proposed the concept “ All motion is relative ”
   (a) Albert Einstein (b) John Kepler (c) Galileo Galilei (d) None of these

2. The field of specialization of famous Muslim scientist Abu Usman Aljahiz was:
   (a) Botany (b) Zoology (c) Astronomy (d) None of these

3. Which month of a calendar year can lack a new moon?
   (a) January (b) February (c) March (d) None of these

4. The sunlight can reach a depth of how many meters in the ocean?
   (a) 100 (b) 80 (c) 120 (d) None of these

5. The biggest planet in our solar system is:
   (a) Venus (b) Earth (c) Jupiter (d) None of these

6. The biggest species of the cat family is:
   (a) Tiger (b) Lion (c) Leopard (d) None of these

7. Which group of animals has heterogametic females?
   (a) Domestic fowl (b) Earthworm (c) Rabbit (d) None of these

8. Which month of a calendar year can lack a new moon?
   (a) February (b) March (c) April (d) None of these

9. The chemical name of quartz is:
   (a) SiO2 (b) Al2O3 (c) Fe2O3 (d) None of these

10. The chemical name of quartz is:
    (a) Aluminum Oxide (b) Stannous oxide (c) Silicon Dioxide (d) None of these

11. Which month of a calendar year can lack a new moon?
    (a) December (b) February (c) March (d) None of these

12. Deuterium differs from hydrogen in having:
    (a) Different atomic number but same atomic weight (b) Different atomic number and different atomic weight (c) Same atomic number but different atomic weight (d) None of these

13. Which month of a calendar year can lack a new moon?
    (a) January (b) February (c) March (d) None of these

14. Coulomb is the scientific unit to measure:
    (a) Velocity (b) Temperature (c) Mass (d) None of these

15. Equator passes through one of these countries:
    (a) Saudi Arabia (b) Germany (c) Japan (d) None of these

16. Anti Diuretic hormone is secreted by one of the following glands:
    (a) Pituitary (b) Pancreas (c) Thyroid (d) None of these

17. Basha Dam is to be constructed on:
    (a) River Sutlaj (b) River Chenab (c) River Jhelum (d) None of these

18. UV light falls in the category of:
    (a) Ionizing Radiations (b) Non-Ionizing Radiations (c) Visible Light (d) None of these

19. The earth’s is divided into 15 major plates of various sizes:
    (a) Mesosphere (b) Stratosphere (c) Lithosphere (d) None of these

20. One of these scientists formulated basic laws of Geometry:
    (a) Pythagoras (b) Archimedes (c) Aristotle (d) None of these

21. Phosphorus is an essential component of one of the following biological molecules:
    (a) Amino acids (b) Nucleic acids (c) Carbohydrates (d) None of these

22. He was the first scientist to prove that planets move around the sun:
    (a) Archimedes (b) Galileo Galilei (c) John Kepler (d) None of these

23. Atom is made up of different kinds of subatomic particles:
    (a) Three (b) Two (c) Four (d) None of these

24. Uranium is best used as nuclear fuel in one of the following forms:
    (a) U²³⁵ (b) U²³⁷ (c) L²³⁵ (d) None of these

25. The Alpha particles are compact clusters of:
    (a) Electrons and Protons (b) Two Protons and Two Neutrons (c) Three Protons and Three Neutrons (d) None of these

26. The Beta particles are fast moving:
    (a) Protons (b) Neutrons (c) Electrons (d) None of these

27. One of the following countries produces maximum energy from atomic reactors:
    (a) France (b) USA (c) UK (d) None of these
28. The unit to measure the quantity of Ozone in the atmosphere is:
(a) Dobson  (b) Dalton  (c) Coulomb  (d) None of these

29. The severity of 2005 earthquake of Pakistan on Richter Scale was:
(a) 6.9  (b) 7.6  (c) 7.1  (d) None of these

30. Geiger-Muller Counter is used to detect:
(a) Protons  (b) Neutrons  (c) Photons  (d) None of these

31. Vacuum tubes have been replaced by:
(a) Conductors  (b) Diodes  (c) Transistors  (d) None of these

32. Dacron is:
(a) Polyethylene  (b) Epoxy  (c) Polyamide  (d) None of these

33. It is a secondary plant nutrient:
(a) Nitrogen  (b) Phosphorus  (c) Sulphur  (d) None of these

34. An area of microbiology that is concerned with the occurrence of disease in human population is:
(a) Immunology  (b) Parasitology  (c) Epidemiology  (d) None of these

35. The number of electrons of a neutral atom is automatically known if one knows the:
(a) Atomic number  (b) Atomic weight  (c) Number of orbitals  (d) None of these

36. Which of the following is not an enzyme?
(a) Chymotrypsin  (b) Secretin  (c) Pepsin  (d) None of these

37. It is impossible for a type O+ baby to have a type ______ mother.
(a) AB  (b) O  (c) O+  (d) None of these

38. Serum is blood plasma minus its:
(a) Calcium ions  (b) Clotting proteins  (c) Globulins  (d) None of these

39. The autonomic nervous system innervates all of these except:
(a) Cardiac muscles  (b) Skeletal muscles  (c) Smooth muscles  (d) None of these

40. The damage to the ______ nerve could result in the defect of the eye movement:
(a) Optic  (b) Trigeminal  (c) Abducens  (d) None of these

41. Which of these is not a region of the spinal cord?
(a) Thoracic  (b) Pelvic  (c) Lumbar  (d) None of these

42. The shape of the external ear is due to:
(a) Elastic cartilage  (b) Fibrocartilage  (c) Articular cartilage  (d) None of these

43. The external surface of the stomach is covered by:
(a) Mucosa  (b) Serosa  (c) Parietal peritoneum  (d) None of these

44. Which of the following is not a human organ system?
(a) Integumentary  (b) Muscular  (c) Epithelial  (d) None of these

45. Which of the following does not vary predictably with the depth of the aquatic environment?
(a) Salinity  (b) Temperature  (c) Penetration by sunlight  (d) None of these

46. The quantity of available nutrients _______ from the lower levels of the energy pyramids to the higher ones.
(a) Increases  (b) Decreases  (c) Remains stable  (d) None of these

47. Which of the following is not a major subdivision of the biosphere?
(a) Hydrosphere  (b) Lithosphere  (c) Stratosphere  (d) None of these

48. Vaccination is synonymous with _______ immunity.
(a) Natural active  (b) Artificial passive  (c) Artificial active  (d) None of these

49. When a patient’s immune system becomes reactive to a drug, this is an example of:
(a) Superinfection  (b) Drug resistance  (c) Allergy  (d) None of these

50. What is the smallest unit of heredity?
(a) Chromosomes  (b) Gene  (c) Nucleotide  (d) None of these

PART-II

NOTE: (i) Part-II is to be attempted on the separate Answer Book.
(ii) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q. Paper.
(iii) Attempt ONLY FIVE questions from PART-II. ALL QUESTIONS carry EQUAL marks.
(iv) Extra attempt of any question or any part of the attempted question will not be considered.

Q.No.2. (a) “The flood disaster in Pakistan is caused by the follies of humans “. Comment.
(b) State the message of “The Earth Hour Movement”. (05)

Q.No.3. (a) Porifera is an ancient group of animals from Cambrian period. What is the cause of their survival /success?
(b) How heavy water differs from ordinary water and what is its use in the Atomic Reactor? (05)

Q.No.4. What part do antibodies play in allergic reactions? How vaccination can be helpful in its control/ prevention?

Q.No.5. (a) Distinguish between Renewable and Non-renewable sources of energy. Give examples of each one of them.
(b) Why Nuclear Energy is being preferred in developed countries and why are we lagging behind in this important source of energy? (05)

Q.No.6. (a) What is Nanotechnology and what are its uses?
(b) Briefly explain the differences between Chemotherapy and Radiotherapy. (05)

Q.No.7. Write comprehensive notes on:
(a) LASER and their uses.  (b) OPTIC FIBRES and their importance in modern telecom system. (5 each)

Q.No.8. Write all that you know about Pesticides. How are they classified by agriculturists? (10)

Q.No.9. Write note on:
(a) Biotechnology  (b) Global Warming (5 each)