SECTION - C
BIOLOGY (Marks - 28)

Answer question nos. 25 to 28 in one sentence each.

25. Which signal will get disrupted in case of spinal cord injury ? (1)
26. What are radicle and plumule ? (1)
27. Mention one advantage of artificial pollination in plants. (1)
28. No two individuals are absolutely alike in a population. Why ? (1)

Answer question nos. 29 to 33 in about 30 words each.

29. Write any two differences between the two ways of oxidation of glucose in organisms. (2)
30. Draw a diagram showing the structure of nephron and label bowman's capsule and collecting duct. (2)
31. "Damage to the ozone layer is a cause of concern." Justify the statement. Suggest any one step to limit this damage. (2)
32. Why traits such as intellegence and knowledge connot be passed on to next generation ? (2)
33. What is dihybrid cross ? Write the genotypic ratio of F2 generation in dihybrid cross. (2)

Answer question nos. 34 to 36 in about 50 words each.

34. Write the actions of three growth promoter hormones. (3)
35. What are the differences between hypogeal and epigeal germination ? Write three points only. (3)
36. Explain three ecological significances provided by forests. (3)

Answer question nos. 37 in about 100 words.

37. What are dams? Is construction of big dams beneficial or harmful? Comment. (5)

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Total number of printed pages - 4

2015
THE MORAL EDUCATION CENTRE.
SCIENCE

Full Marks - 80
Time : Three hours
Attempt all questions.

The figures in the right hand margin indicate full marks for the questions.

SECTION - A
CHEMISTRY (Marks - 26)

Answer question nos. 1 to 4 in one complete sentence each.

1. What are kernels ? (1)
2. An atom P combines with another atom Q by mutual sharing of electrons between P and Q to form a molecule PQ. What type of chemical bond is present in PQ ? (1)
3. What chemical change is expected in the air when lightning occurs during thunderstorm ? (1)
4. Write the balanced equation for the reaction between zinc and sodium hydroxide solution. (1)

Answer question nos. 5 to 8 in about 30 words each.

5. How do metals differ from non-metals in their reactions with oxygen and the products are dissolved in water ? (2)
6. SO_2 is an acidic oxide while Na_2O is basic in nature. Support the same with the help pf examples. (2)
7. C_4H_8 is the molecular formula of butene, an unsaturated hydrocarbon. Now use this same number of C & H atoms, write the molecular structure of a saturated hydrocarbon and name it. (2)
8. Draw a neat and labelled diagram of the fitted apparatus used in the esterification reaction. (2)

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Answer question nos. 9 to 11 in about 50 words each.

9. Describe Solvay process.Write the relevant equations too. (3)
10. What is exothermic reaction ? Why is respiration an exothermic process ? (3)
11. What is the difference between the terms roasting and calcination? Show the difference using different ores of zinc. (3)

Answer question nos. 12 in about 100 words each.

12. An atom X has electronic configuration 2, 8, 7.
    (a) What is the atomic number of this element ?
    (b) What is the valency of X ?
    (c) To which group of the modern periodic table does it belong ?
    (d) Write two elements that lie in the same period before X.
    (e) Which one of them will be more electronegative Nitrogen (at. no. 7) and Phosphorous (at. no. 15) (5)

SECTION - B

PHYSICS (Marks - 26)

Answer question nos. 13 to 16 in one word or a phrase or a complete sentence.

13. Define 1 volt. (1)
14. What happens to a magnetic compass needle when there is no magnet or magnetic field in the vicinity of the compass needle ? (1)
15. What is an electromagnet ? (1)
16. How does a ray of light passing through the optical centre of a lens travel in a straight line without deviation ? (1)

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Answer question nos. 17 to 20 in about 30 words each.

17. Why are there two ratings in the domestic electric circuits? (2)
18. A nichrome wire has diameter 1.0 mm & resistivity of 1.0×10^{-4} ohm metre. Calculate the required length of this wire to make a resistance of 56 ohm. (2)
19. List one point to distinguish between nuclear fission and nuclear fusion reactions. (2)
20. Mention two upstream problems of construction of big dams. (2)

Answer question nos. 21 to 23 in about 50 words each.

21. What is meant by heating effect of electricity? Calculate the energy transferred in kWh by a 0.5 A current flowing through a resistance of 20 ohm for 2400 seconds. (3)
22. Suppose a current flows along a horizontal conductor in south to north direction. What will be the direction of the magnetic field at points
    (i) directly below it ?
    (ii) directly above it ?
    (iii) Name the rule used to find the direction of the magnetic field. (3)
23. Give three points to distinguish between A.C over D.C. (3)

Answer question nos. 24 in about 100 words.

24. Name four common defects of vision. Give the causes and remedial measures of myopia. Draw a neat labelled diagram of the human eye. (5)

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