K.S.E.E.B., Malleshwaram, Bangalore
## SSLC Model Question Paper (2015-16)
SCIENCE (83E)

Max Marks: 80   Time: 2 Hours 45 minutes

No. of Questions: 42

***Four alternatives are given for the each of the following questions/incomplete statements.
Only one of them is correct or most appropriate. Choose the correct alternative and write
the complete answer in the space provided against each question.*** **1 × 10 = 10**

1. The correct equation of nuclear fission chain reaction is

   A] $_{92}U^{235} + _{0}n^{1} \longrightarrow _{56}Ba^{142} + _{36}Kr^{91} - 3\,_{0}n^{1} + energy$

   B] $_{92}U^{235} + _{0}n^{1} \longrightarrow _{56}Ba^{142} - _{36}Kr^{91} + 3\,_{0}n^{1} + energy$

   C] $_{92}U^{235} + _{0}n^{1} \longrightarrow _{56}Ba^{142} + _{36}Kr^{91} + 3\,_{0}n^{1} + energy$

   D] $_{92}U^{235} + _{0}n^{1} \longrightarrow _{56}Ba^{91} + _{36}Kr^{142} - 3\,_{0}n^{1} + energy$

2. The ratio of F_2 Generation of Dihybrid cross is
   A] 3:9:3:1   B] 3:9:1:3   C] 3:1:9:3   D] 9:3:3:1

3. The speed of Ultrasonic sound in air is
   A] $3 \times 10^8 ms^{-1}$ B] $340\ ms^{-1}$ C] $1500\ ms^{-1}$ D] $4500\ ms^{-1}$

4. The role of Hydrosol in the preparation of jaggery is
   A] Colouring agent   B] Decolorizing agent   C] Purifying agent   D] Oxidizing agent

5. Which one of the following is the major constituent in Cigarette smoking
   A] Carbon dioxide   B] Carbon monoxide   C] Sulphur dioxide   D] Sulphur trioxide

6. The pathogen responsible for Syphillis
   A] Neisseria gonorrhoeae   B] Human papilloma virus
   C] Herpes Simplex Virus   D] Treponema pallidum

7. The fermented matter of Molasses
   A] Raw material   B] Wort   C] Bagasse   D] Precipitate

8. The number of groups and periods in modern periodic table, respectively
   A] 7, 8   B] 7, 18   C] 8, 7   D] 18, 7

9. The transformer among the following in which input voltage is less than output voltage is

   A]   B]   C]   D]
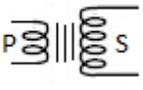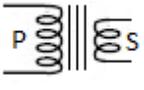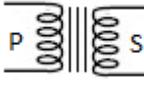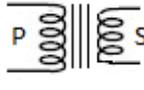
10. Which one represent cells of cartilage

    A] Lacunae   B] Perichondrium   C] Chondrocytes   D] Ossein

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11. *Match the following vertebrates given in column 'A' with their features in column 'B'.*
$4 \times 1 = 4$

A	B
1. Labeo	a) exoskeleton with feathers and four chambered heart
2. Newt	b) exoskeleton with scales and three chambered heart
3. Calotes	c) exoskeleton with scales and two chambered heart
4. Rhea	d) exoskeleton with plates and three chambered heart
	e) exoskeleton with feathers and three chambered heart
	f) moist skin and three chambered heart
	g) moist skin and two chambered heart

Answer the following
$7 \times 1 = 7$

12. Two enzymes involved in the preparation of ethyl alcohol.
13. Every chemist prefers to use "Borosil" glass for laboratory equipments.
14. Child is suffering from stunted growth, retarded mental development, bow legs, defective teeth. Name the disease.
15. What is transesterification?
16. Name the process by which pores of ceramics plugged out.
17. Mention the use of Pneumatic bones in birds.
18. Write the working principle of Solar cell.

Answer the following
$16 \times 2 = 32$

19. A 50Hz vibrator produces air waves that speed out at 340ms^{-1}.
    What is their   a) time period
                     b) wavelength
20. Give scientific reason:
    a) 18th group elements of periodic table are also called inert gases.
    b) Ionization energy increases along a period and decreases down a group.
21. Justify the following:
    a) In Hospitals specialists suggests that Ultrasonic sound scanners are better than X-rays.
    b) Ultrasound waves are used in SONAR.
22. Draw a neat diagram of electrolytic refining of copper and label the parts.
23. What are alloys? Mention their two properties.
24. a) What are polyfunctional groups?
     b) Name the amino acid which contain both "amino" and carboxylic acid" groups.
25. Explain the process of sewage water treatment.
                 [OR]
    Write any four effects of sound pollution.
26. Mention the four ways through which AIDS do not spread.
27. 'Now a days Biotechnology principles are very essential in food industries'. Justify the statement.
28. Explain the method of extraction of Amorphous silicon with the help of chemical equations.
                 [OR]
    Write the balanced chemical equation of chemical reactions taking place under the following circumstances.
    a) Silicon is heated with coke.   b) Steam is passed over red hot silicon.
29. Write two differences between nuclear reactions and chemical reactions.

30. 2L of gas is enclosed in a vessel at 2×10^5 Pa pressure and allowed to expand about 4L under constant temperature. What would be the final pressure?

31. Mention the stages of evolution of man.

[OR]

Mention any four features of "Dryopthecus".

32. 'Steam engines of Indian Navy are replaced by diesel engines'. Justify this move with two advantages.

33. Write the balanced chemical equations for the following.
    a) Action of Zinc with dilute sulphuric acid.
    b) Action of Iron with water.

34. Draw a neat diagram of expansion stroke of external combustion engine and label the parts.

Answer the following   5 ×3 = 15

35. Represent the Checker board of F_2 generation of Dihybrid cross.

[OR]

Mention any four limitations Biotechnology.

36. Draw a neat diagram of induction coil and label the following.
    a) Primary coil   b) Make and break arrangement

37. Draw the neat diagram of Neuron and label the parts.

38. What are semiconductors? Write the two differences between the two types of extrinsic semiconductors.

[OR]

What are transistors? Mention the two differences between the two kinds of transistors.

39. Draw a neat diagram of voltameter and label the parts.

Answer the following   3 ×4 = 12

40. Write the structural formulae for the following:
    a) Cyclopropane   b) Toluene   c) Ethyne   d) n–butane

[OR]

What is Catenation? Write the structural formulae for the following.
    a) Benzene   b) Methane   c) Cyclohexane

41. Write the stages of stellar evolution and explain the first stage and the final stage of it.

[OR]

What are geostationary satellites? Why are they called so? Mention their two uses.

42. Draw a neat diagram of the cross section of the human eye and label the following.
    a) Fovea (yellow spot)   b) Cornea