CAREERS360

KARNATAKA SSLC SCIENCE QUESTION PAPER 2019 (SET A TO D)

A

SL. No. : Q

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 42]
Total No. of Questions : 42]

[ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 12
[Total No. of Printed Pages : 12

ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯ ಕೋಡ್

CCE RF
REVISED

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / Physics, Chemistry & Biology)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Fresh)

ದಿನಾಂಕ : 02. 04. 2019]
[Date : 02. 04. 2019

ಸಮಯ : ಬೆಳಗ್ಗೆ 9-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ–12-30 ರವರೆಗೆ] [Time : 9-30 A.M. to 12-30 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80]
[Max. Marks : 80

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು–ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

General Instructions to the Candidate :

1. This Question Paper consists of 42 objective and subjective types of questions.
2. This question paper has been sealed by reverse jacket. You have to cut on the right side to open the paper at the time of commencement of the examination. Check whether all the pages of the question paper are intact.
3. Follow the instructions given against both the objective and subjective types of questions.
4. Figures in the right hand margin indicate maximum marks for the questions.
5. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.

Tear here

Four alternatives are given for 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 along with its letter of alphabet.

$10 \times 1 = 10$

1. The change that occurs in the eye to see the distant objects clearly is

   (A) focal length of the eye lens decreases

   (B) curvature of the eye lens increases

   (C) focal length of the eye lens increases

   (D) ciliary muscles of the eye contract

2. The functional groups present in propanol and propanal respectively are

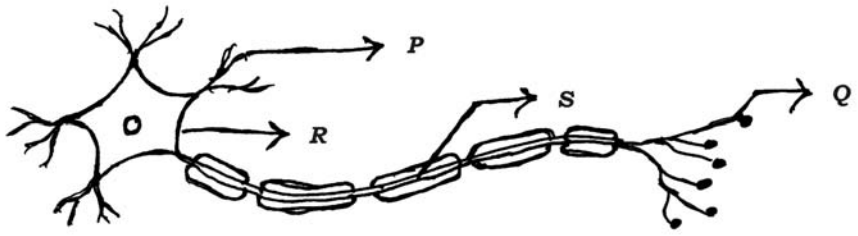
   (A) — OH and — CHO

   (B) — OH and — COOH

   (C) — CHO and — COOH

   (D) — CHO and — CO

3. The correct path of the movement of nerve impulses in the following diagram is



   (A) $Q \rightarrow S \rightarrow R \rightarrow P$

   (B) $P \rightarrow Q \rightarrow R \rightarrow S$

   (C) $S \rightarrow R \rightarrow Q \rightarrow P$

   (D) $P \rightarrow R \rightarrow S \rightarrow Q$

4. The resistance of a conductor is 27 Ω . If it is cut into three equal parts and connected in parallel, then its total resistance is

(A) 6 Ω (B) 3 Ω

(C) 9 Ω (D) 27 Ω

5. The chemical equation that represents neutralization reaction among the following is

(A) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$

(B) $MnO_2 + 4\ HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$

(C) $2\ NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$

(D) $AgNO_3 + HCl \rightarrow AgCl + HNO_3$

6. By constructing Khadin check-dams in level terrains,

(A) underground water level decreases

(B) underground water level increases

(C) vegetation in the nearby areas are destroyed due to excess moisture

(D) underground water gets polluted

7. To obtain a diminished image of an object from a concave mirror, position of the object should be

(*F* = principal focus, *C* = centre of curvature, *P* = pole)

(A) between *C* and *F* (B) beyond *C*

(C) between *P* and *F* (D) at *F*

8. The electronic configuration of element *X* is 2, 8, 8, 1 and the electronic configuration of element *Y* is 2, 8, 7. Then the type of bond formed between these two elements is

(A) covalent bond

(B) hydrogen bond

(C) metallic bond

(D) ionic bond

9. Part of the flower that develops into fruit and part of the seed that develops into root respectively are

(A) ovary and plumule

(B) plumule and radicle

(C) ovary and radicle

(D) ovary and ovule

10. A pure dominant pea plant producing round — yellow seeds is crossed with pure recessive pea plant producing wrinkled — green seeds. The number of plants bearing round — green seeds in the F_1 generation of Mendel's experiment is

(A) 0 (B) 1

(C) 3 (D) 9

11. The functions of hormones are given in **Column-A** and the names of the hormones are given in **Column-B**. Match them and write the answer along with its letters : $4 \times 1 = 4$

Column - A	***Column - B***
(A) Prepares the body to deal with the situation	(i) Growth hormone
(B) Regulates metabolism for body growth	(ii) Testosterone
(C) Regulates blood sugar levels	(iii) Adrenaline
(D) Regulates the growth and development of the body	(iv) Progesterone
	(v) Insulin
	(vi) Thyroxine
	(vii) Oestrogen

Answer the following questions. $7 \times 1 = 7$

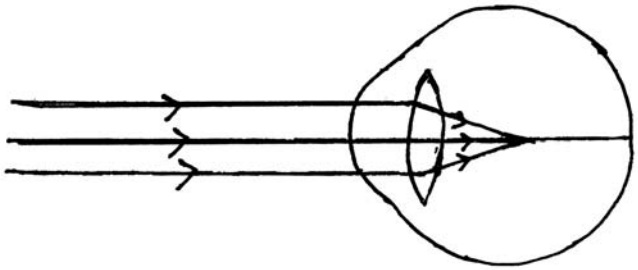
12. Name the acid present in the stinging hair of nettle leaves.

13. What are fossils ?

14. Convex mirror is commonly used as rear-view mirror in vehicles. Why ?

15. What is roasting in metallurgy ?

16. Observe the given figure. Name the eye defect indicated in the figure and also mention the lens used to correct this defect.



17. What is Tyndall effect ?

18. Under what condition lactic acid is produced in the muscle cells ?

Answer the following questions. 16 × 2 = 32

19. Draw the diagram of an electric circuit in which the resistors R_1, R_2 and R_3 are connected in parallel including an ammeter and a voltmeter and mark the direction of the current.

20. Name the brown fumes liberated when lead nitrate is heated. Write the balanced chemical equation for this reaction.

21. Explain the process of translocation of food materials in plants.

OR

Explain the process of digestion in the small intestine of man.

22. Draw the diagram of a simple electric motor. Label the following parts :

(i) Split rings (ii) Brushes.

23. What are structural isomers ? Name the first member of alkanes that shows structural isomerism.

24. Draw the diagram showing the longitudinal section of a flower.

Label the following parts :

(i) Style (ii) Anther.

25. Draw the diagram of arrangement of apparatus used to show the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning.

Label the following parts.

(i) Soap solution

(ii) Delivery tube.

26. It is advantageous to connect electric devices in parallel instead of connecting them in series. Why ?

OR

According to Joule's law of heating, mention the factors on which heat produced in a resistor depends. According to this law write the formula used to calculate the heat produced.

27. List the disadvantages of using fossil fuels.

OR

List the advantages of 'reduce' and 'reuse' to save environment.

28. The focal length of a concave lens is 30 cm. At what distance should the object be placed from the lens so that it forms an image at 20 cm from the lens ?

29. Draw the diagram of the apparatus used in the electrolysis of water. Label the following parts.

(i) Graphite rod

(ii) Cathode.

30. Growth of thread like structures along with the gradual spoilage of tomato can be observed when a cut tomato is kept aside for four days. Interpret the causes for this change.

31. An electric refrigerator rated 400 W is used for 8 hours a day. An electric iron box rated 750 W is used for 2 hours a day. Calculate the cost of using these appliances for 30 days, if the cost of 1 kWh is Rs. 3/-.

32. There is no change in the colour of red litmus and blue litmus paper when introduced into an aqueous solution of sodium chloride. After passing direct current through the same solution, red litmus changes to blue colour. Which product is responsible for this change ? Mention any two uses of this product.

33. A food chain in a polluted aquatic ecosystem is given. Observe it and answer the following questions.

Fresh water $\rightarrow$ Algae $\rightarrow$ Fishes $\rightarrow$ Birds.

(i) Which organisms are disturbed more due to biomagnification ? Why ?

(ii) This ecosystem will be destroyed gradually due to biomagnification. Why ?

OR

A student places a piece of cucumber, a glass piece, a banana peel and a plastic pen in a pit and closes it. What changes can be observed in these materials after a month ? Give scientific reason for these changes.

34. What is dispersion of light ? Mention the colour that bends the least and the colour that bends the most when light undergoes dispersion through a prism.

OR

Mention any *four* phenomena that can be observed due to atmospheric refraction of light on the earth.

Answer the following questions. $5 \times 3 = 15$

35. Draw the ray diagrams for the image formation in a convex lens when an object is placed

(i) at focus F_1

(ii) beyond $2F_1$.

36. (i) Write the differences between saturated and unsaturated hydrocarbons.

(ii) Write the molecular formula and structural formula of an alkene having five carbon atoms.

OR

(i) Carbon atom does not form C^{4-} anion and C^{4+} cation. Why ?

(ii) How can ethanol be converted into ethanoic acid ?

37. Draw the diagram showing the sectional view of the human heart. Label the following parts.

(i) Aorta

(ii) Chamber of the heart that receives deoxygenated blood.

38. (i) Name the major constituent of biogas. Write the properties of biogas which make it a good fuel.

(ii) Name the two devices that work using heat energy of the sun.

OR

(i) Write the advantages of solar cells.

(ii) Write any two hazards of nuclear power generation.

39. Observe the given table and answer the following question :

Elements	*A*	*B*	*C*	*D*	*E*
Atomic number	11	4	2	7	19

Identify the two elements that belong to the same period and the two elements that belong to the same group. Give reason for your conclusion.

Answer the following questions. $3 \times 4 = 12$

40. (i) How does overload and short-circuit occur in an electric circuit ? Explain. What is the function of fuse during this situation ?

(ii) Mention two properties of magnetic field lines.

41. Give reason :

(i) Ionic compounds in solid state do not conduct electricity, whereas in molten state are good conductors of electricity.

(ii) Silver articles when exposed to air gradually turn blackish.

(iii) Chemical reaction does not take place when copper is added to iron sulphate solution.

OR

Give reason :

(i) "Alloys of iron are more useful when compared to pure iron."

(ii) Copper loses its brown layer gradually when exposed to air.

(iii) Aluminium oxide is called amphoteric oxide.

42. (i) Write the differences between homologous organs and analogous organs.

(ii) Write the differences between the sex chromosomes of man and sex chromosomes of woman.

(iii) Sex of a child is determined by the father. How ?

B

SL. No. : Q

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 42]
Total No. of Questions : 42]

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CCE RR
UNREVISED

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / Physics, Chemistry & Biology)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

(ಹಳೆ ಪಠ್ಯಕ್ರಮ / Old Syllabus)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

ದಿನಾಂಕ : 02. 04. 2019]
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[Max. Marks : 80

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Four alternatives are given for 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 along with its letter of alphabet.

$10 \times 1 = 10$

1. The principle of working of solar cells is

   (A) magnetic effect

   (B) electromagnetic induction

   (C) chemical effect

   (D) photovoltaic effect

2. The hormone which inhibits the growth of the plants is

   (A) auxin

   (B) abscisic acid

   (C) gibberellin

   (D) cytokinin

3. The metal compound used in the manufacture of yellow coloured glass is

   (A) cobalt compound

   (B) ferric compound

   (C) chromium compound

   (D) nickel compound

4. The device used to increase or decrease the input A.C. voltage is

(A) motor (B) induction coil

(C) transformer (D) commutator

5. A tall pea plant is crossed with a dwarf pea plant. If 24 pea plants are obtained in F_2 generation then the correct number of tall and dwarf pea plants are

(A) 18 tall and 6 dwarf

(B) 12 tall and 12 dwarf

(C) 6 tall and 18 dwarf

(D) 16 tall and 8 dwarf

6. The frequency of the current produced in A.C. dynamo depends on the

(A) rate of rotation of the armature

(B) strength of the magnetic field

(C) number of turns of the coil

(D) size of the dynamo

7. The general molecular formula of alkynes is

(A) C_nH_{2n-2} (B) C_nH_{2n+2}

(C) C_nH_{2n} (D) C_nH_{2n+1}

8. One of the factors responsible for the depletion of ozone layer is

(A) reforestation (B) use of biofuel

(C) use of detergents (D) use of aerosols

9. In the following chemical reaction metal represented by 'X' is

$$CuSO_4 + \boxed{X} \rightarrow \boxed{X}SO_4 + Cu$$

(A) Ag (B) Au

(C) Fe (D) Hg

10. The aqueous solution that conducts electricity among the following is

(A) sugar solution

(B) fructose solution

(C) glucose solution

(D) sodium chloride solution

11. The types of animal tissue are given in **Column-A** and their functions are given in **Column-B**. Match them and write the answer along with its letter :

$4 \times 1 = 4$

Column - A	***Column - B***
(A) Lymph	(i) attaches muscles to the bones
(B) Bone marrow	(ii) responds to the stimulus
(C) Tendon	(iii) produces antibodies
(D) Cartilage	(iv) connects one bone to another
	(v) brings bending and stretching movements of the body
	(vi) facilitates transport of substances in the body
	(vii) produces blood cells

Answer the following questions. $7 \times 1 = 7$

12. Wind mills cannot be installed in all the regions. Why ?

13. Doppler effect of sound is not experienced by the listener when the listener and the source of sound move with the same speed and in the same direction. Why ?

14. Name the male and female gametes producing structures found in gametophyte of bryophytes.

15. State modern periodic law.

16. What are the merits of glazing the earthenwares ?

17. The platelets count in the blood sample of a person is found to be $40,000/mm^3$. Then, from which disease that person is suffering ?

18. Write the two functional groups present in salicylic acid.

Answer the following questions. $16 \times 2 = 32$

19. Four elements of second period of periodic table is given below. Observe the table and answer the following questions :

Elements	Boron	Carbon	Nitrogen	Oxygen
Atomic number	5	6	7	8

(a) Name the element having (i) highest atomic size (ii) highest ionisation energy.

(b) Mention the relationship between atomic size and ionisation energy.

20. Nowadays biofuels are used as alternative to fossil fuels. Give scientific reasons.

21. A tuning fork vibrates 6000 times in 60 seconds. If the sound wave produced travels at 330 ms^{-1} then, find its wavelength.

22. Draw the diagram of a petrol engine. Label the following parts :

    (i) Inlet valve

    (ii) Piston.

23. Mention the modes of transmission of HIV infection.

24. Name the acids used in the extraction of amorphous silicon in the following cases.

    (i) To separate magnesium oxide

    (ii) To remove unreacted silica in the chemical reaction.

OR

Write the uses of the following silicon compounds :

(i) Silicon carbide

(ii) Zeolite.

25. Draw the diagram of a dicot plant and label its reproductive part.

26. Write the balanced chemical equations for the following chemical reactions.

    (i) When aluminium reacts with chlorine

    (ii) When sodium reacts with water.

    OR

    Molten cryolite is used in the extraction of aluminium. Give reason.

27. State Faraday's laws of electromagnetic induction.

28. A student observes a flying bat and decides that it belongs to the class aves. Whether the student's decision is correct ? Clarify with reasons.

29. What is tissue culture ? Mention any two advantages of this technology.

    OR

    What is hydroponics ? Mention any two advantages of hydroponics.

30. Draw the diagram of the apparatus used in electroplating. Label the following parts :

    (i) Anode

    (ii) Cathode.

31. Mention any four limitations of steam engine.

    OR

    What is a heat engine ? Mention the function of crank shaft in heat engine.

32. Ultrasonic sound waves sent by a ship return after 6s by reflection from the sea bed. If the speed of ultrasonic wave in sea water is 1530 ms^{-1} then, find the depth of the sea in kilometres.

33. How does the Caucasoid man differ from Mongoloid man in physical features ?

OR

How does the Caucasoid man differ from Congoid man in physical features ?

34. The data obtained in an experiment performed on the pressure and volume of given mass of gas at constant temperature is given in the following table :

Pressure (in pascals)	Volume (in litres)
$1{\cdot}5 \times 10^5$	10
$2{\cdot}5 \times 10^5$	X
$3{\cdot}0 \times 10^5$	5
Y	2

Based on the above data find the values of X and Y.

Answer the following questions. $5 \times 3 = 15$

35. Draw the diagram of a nuclear power reactor. Label the following parts :

(i) Reflector

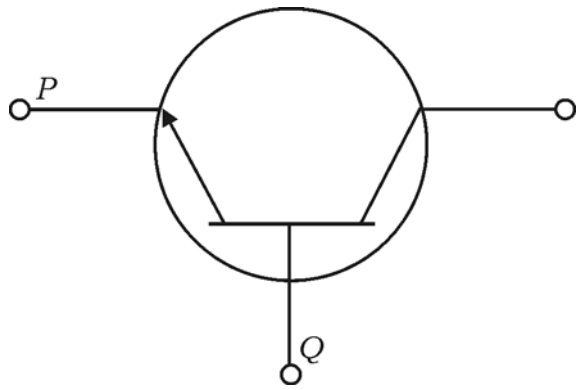
(ii) Heat exchanger.

36. Explain the process of manufacture of sugar from sugarcane.

OR

Explain the process of manufacture of ethyl alcohol from molasses.

37. Observe the given circuit symbol of a transistor and answer the following questions :



(i) Name the regions of the transistor marked as *P* and *Q* and mention their function.

(ii) Mention the type of this transistor.

38. (i) Explain the technology of obtaining DNA fingerprint of an individual.

(ii) How does the DNA fingerprint technology help to solve legal disputes ?

OR

Write the importance of DNA with respect to the following :

(i) Heredity

(ii) Protein synthesis

(iii) Mutation.

39. Draw the diagram of blast furnace used in the extraction of iron. Label the following :

(i) Molten iron

(ii) Slag.

Answer the following questions. $3 \times 4 = 12$

40. (i) Explain the protostar stage in the stellar evolution.

(ii) State the law of conservation of momentum. Write the two factors on which acceleration of the rocket depend ?

OR

(i) Explain the black hole stage in the stellar evolution. Based on what factors the existence of black hole can be identified ?

(ii) Mention the relationship between orbital velocity and escape velocity. What is the meaning of the statement "Escape velocity is 11·2 kms^{-1}" on the earth.

41. Write the structural formula and any *two* uses of the following hydrocarbons :

(i) Benzene

(ii) Toluene.

42. Draw the diagram showing the structure of vertical section of the human eye. Label the following parts.

(i) Fovea

(ii) Lens.

C

SL. No. : Q

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 52]
Total No. of Questions : 52]

[ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 12
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CCE PF
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ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / Physics, Chemistry & Biology)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Fresh)

ದಿನಾಂಕ : 02. 04. 2019]

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ಗರಿಷ್ಠ ಅಂಕಗಳು : 100]

[Max. Marks : 100

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Four alternatives are given for 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 along with its letter of alphabet.

$10 \times 1 = 10$

1. The change that occurs in the eye to see the distant objects clearly is

   (A) focal length of the eye lens decreases

   (B) curvature of the eye lens increases

   (C) focal length of the eye lens increases

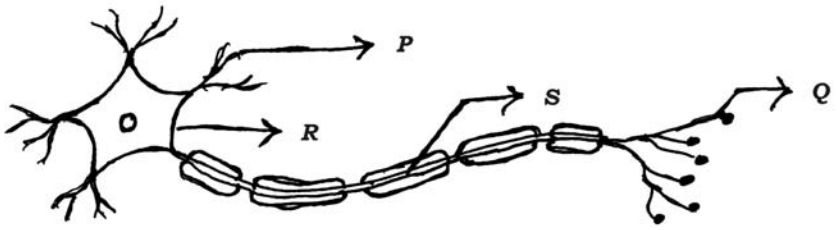
   (D) ciliary muscles of the eye contract

2. The functional groups present in propanol and propanal respectively are

   (A) — OH and — CHO (B) — OH and — COOH

   (C) — CHO and — COOH (D) — CHO and — CO

3. The correct path of the movement of nerve impulses in the following diagram is



   (A) $Q \rightarrow S \rightarrow R \rightarrow P$ (B) $P \rightarrow Q \rightarrow R \rightarrow S$

   (C) $S \rightarrow R \rightarrow Q \rightarrow P$ (D) $P \rightarrow R \rightarrow S \rightarrow Q$

4. The resistance of a conductor is 27 Ω . If it is cut into three equal parts and connected in parallel, then its total resistance is

   (A) 6 Ω (B) 3 Ω

   (C) 9 Ω (D) 27 Ω

5. The chemical equation that represents neutralization reaction among the following is

(A) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$

(B) $MnO_2 + 4\ HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$

(C) $2\ NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$

(D) $AgNO_3 + HCl \rightarrow AgCl + HNO_3$

6. By constructing Khadin check-dams in level terrains,

(A) underground water level decreases

(B) underground water level increases

(C) vegetation in the nearby areas are destroyed due to excess moisture

(D) underground water gets polluted

7. To obtain a diminished image of an object from a concave mirror, position of the object should be

(*F* = principal focus, *C* = centre of curvature, *P* = pole)

(A) between *C* and *F* (B) beyond *C*

(C) between *P* and *F* (D) at *F*

8. The electronic configuration of element *X* is 2, 8, 8, 1 and the electronic configuration of element *Y* is 2, 8, 7. Then the type of bond formed between these two elements is

(A) covalent bond (B) hydrogen bond

(C) metallic bond (D) ionic bond

9. Part of the flower that develops into fruit and part of the seed that develops into root respectively are

(A) ovary and plumule (B) plumule and radicle

(C) ovary and radicle (D) ovary and ovule

10. A pure dominant pea plant producing round yellow seeds is crossed with pure recessive pea plant producing wrinkled green seeds. The number of plants bearing round green seeds in the F_1 generation of Mendel's experiment is

(A) 0 (B) 1

(C) 3 (D) 9

11. The functions of hormones are given in **Column-A** and the names of the hormones are given in **Column-B**. Match them and write the answer along with its letters : $4 \times 1 = 4$

Column - A	***Column - B***
(A) Prepares the body to deal with the situation	(i) Growth hormone
(B) Regulates metabolism for body growth	(ii) Testosterone
(C) Regulates blood sugar levels	(iii) Adrenaline
(D) Regulates the growth and development of the body	(iv) Progesterone
	(v) Insulin
	(vi) Thyroxine
	(vii) Oestrogen

Answer the following questions. $7 \times 1 = 7$

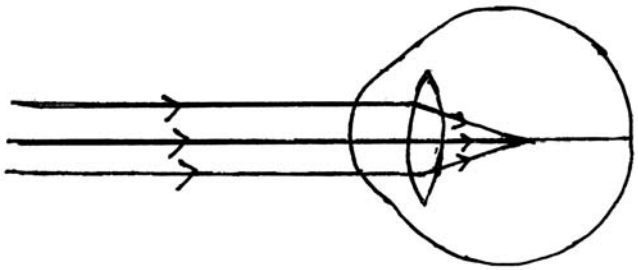
12. Name the acid present in the stinging hair of nettle leaves.

13. What are fossils ?

14. Convex mirror is commonly used as rear-view mirror in vehicles. Why ?

15. What is roasting in metallurgy ?

16. Observe the given figure. Name the eye defect indicated in the figure and also mention the lens used to correct this defect.



17. What is Tyndall effect ?

18. Under what condition lactic acid is produced in the muscle cells ?

Answer the following questions. $26 \times 2 = 52$

19. Draw the diagram of an electric circuit in which the resistors R_1, R_2 and R_3 are connected in parallel including an ammeter and a voltmeter and mark the direction of the current.

20. Name the brown fumes liberated when lead nitrate is heated. Write the balanced chemical equation for this reaction.

21. Explain the process of translocation of food materials in plants.

OR

Explain the process of digestion in the small intestine of man.

22. Draw the diagram of a simple electric motor. Label the following parts :

    (i) Split rings (ii) Brushes.

23. What are structural isomers ? Name the first member of alkanes that shows structural isomerism.

24. Draw the diagram showing the longitudinal section of a flower.

    Label the following parts :

    (i) Style (ii) Anther.

25. Draw the diagram of arrangement of apparatus used to show the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning.

    Label the following parts.

    (i) Soap solution

    (ii) Delivery tube.

26. It is advantageous to connect electric devices in parallel instead of connecting them in series. Why ?

    OR

    According to Joule's law of heating, mention the factors on which heat produced in a resistor depends. According to this law write the formula used to calculate the heat produced.

27. List the disadvantages of using fossil fuels.

    OR

    List the advantages of 'reduce' and 'reuse' to save environment.

28. The focal length of a concave lens is 30 cm. At what distance should the object be placed from the lens so that it forms an image at 20 cm from the lens ?

29. Draw the diagram of the apparatus used in the electrolysis of water. Label the following parts.

    (i) Graphite rod

    (ii) Cathode.

30. Growth of thread like structures along with the gradual spoilage of tomato can be observed when a cut tomato is kept aside for four days. Interpret the causes for this change.

31. An electric refrigerator rated 400 W is used for 8 hours a day. An electric iron box rated 750 W is used for 2 hours a day. Calculate the cost of using these appliances for 30 days, if the cost of 1 kWh is Rs. 3/-.

32. There is no change in the colour of red litmus and blue litmus paper when introduced into an aqueous solution of sodium chloride. After passing direct current through the same solution, red litmus changes to blue colour. Which product is responsible for this change ? Mention any two uses of this product.

33. A food chain in a polluted aquatic ecosystem is given. Observe it and answer the following questions.

    Fresh water → Algae → Fishes → Birds.

    (i) Which organisms are disturbed more due to biomagnification ? Why ?

    (ii) This ecosystem will be destroyed gradually due to biomagnification. Why ?

OR

A student places a piece of cucumber, a glass piece, a banana peel and a plastic pen in a pit and closes it. What changes can be observed in these materials after a month ? Give scientific reason for these changes.

34. What is dispersion of light ? Mention the colour that bends the least and the colour that bends the most when light undergoes dispersion through a prism.

OR

Mention any *four* phenomena that can be observed due to atmospheric refraction of light on the earth.

35. Write the disadvantages of constructing hydroelectric plants.

36. Write the structural formulae of the following compounds :

(i) Cyclohexane

(ii) Chloroethane.

37. Draw the diagram showing the structure of human excretory system. Label the following parts.

(i) Urinary bladder

(ii) Ureter.

38. State Fleming's right hand rule.

39. Draw the diagram of apparatus used in refining of copper from copper sulphate solution. Label the following parts.

(i) Anode

(ii) Acidified copper sulphate solution.

40. Explain the function of auxin hormone.

41. State the two laws of reflection of light.

42. Write the balanced chemical equations for the following reactions.

(i) Red hot iron reacts with steam

(ii) Magnesium reacts with dilute hydrochloric acid.

43. Write the properties of image formed in a plane mirror.

44. Name the type of asexual reproduction that occurs in the following.

(i) Pomegranate

(ii) Hydra

(iii) Planaria

(iv) Plasmodium.

Answer the following questions. $5 \times 3 = 15$

45. Draw the ray diagrams for the image formation in a convex lens when an object is placed

(i) at focus F_1

(ii) beyond $2F_1$.

46. (i) Write the differences between saturated and unsaturated hydrocarbons.

(ii) Write the molecular formula and structural formula of an alkene having five carbon atoms.

OR

(i) Carbon atom does not form C^{4-} anion and C^{4+} cation. Why ?

(ii) How can ethanol be converted into ethanoic acid ?

47. Draw the diagram showing the sectional view of the human heart. Label the following parts.

(i) Aorta

(ii) Chamber of heart that receives deoxygenated blood.

48. (i) Name the major constituent of biogas. Write the properties of biogas which make it a good fuel.

(ii) Name the two devices that work using heat energy of the sun.

OR

(i) Write the advantages of solar cells.

(ii) Write any two hazards of nuclear power generation.

49. Observe the given table and answer the following question :

Elements	*A*	*B*	*C*	*D*	*E*
Atomic number	11	4	2	7	19

Identify the two elements that belong to the same period and the two elements that belong to the same group. Give reason for your conclusion.

Answer the following questions. $3 \times 4 = 12$

50. (i) How does overload and short-circuit occur in an electric circuit ? Explain. What is the function of fuse during this situation ?

(ii) Mention two properties of magnetic field lines.

51. Give reason.

(i) Ionic compounds in solid state do not conduct electricity, whereas in molten state are good conductors of electricity.

(ii) Silver articles when exposed to air gradually turn blackish.

(iii) Chemical reaction does not take place when copper is added to iron sulphate solution.

OR

Give reason.

(i) "Alloys of iron are more useful when compared to pure iron."

(ii) Copper loses its brown layer gradually when exposed to air.

(iii) Aluminium oxide is called amphoteric oxide.

52. (i) Write the differences between homologous organs and analogous organs.

(ii) Write the differences between the sex chromosomes of man and sex chromosomes of woman.

(iii) Sex of a child is determined by the father. How ?

D

SL. No. : Q

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 52]
Total No. of Questions : 52]

[ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 12
[Total No. of Printed Pages : 12

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UNREVISED

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / Physics, Chemistry & Biology)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

(ಹಳೆ ಪಠ್ಯಕ್ರಮ / Old Syllabus)

(ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Repeater)

ದಿನಾಂಕ : 02. 04. 2019]
[Date : 02. 04. 2019

ಸಮಯ : ಬೆಳಗ್ಗೆ 9-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ–12-45 ರವರೆಗೆ] [Time : 9-30 A.M. to 12-45 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 100]
[Max. Marks : 100

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು–ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

General Instructions to the Candidate :

1. This Question Paper consists of 52 objective and subjective types of questions.
2. This question paper has been sealed by reverse jacket. You have to cut on the right side to open the paper at the time of commencement of the examination. Check whether all the pages of the question paper are intact.
3. Follow the instructions given against both the objective and subjective types of questions.
4. Figures in the right hand margin indicate maximum marks for the questions.
5. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.

Tear here

Four alternatives are given for 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 along with its letter of alphabet.

$10 \times 1 = 10$

1. The principle of working of solar cells is

   (A) magnetic effect

   (B) electromagnetic induction

   (C) chemical effect

   (D) photovoltaic effect

2. The hormone which inhibits the growth of the plants is

   (A) auxin (B) abscisic acid

   (C) gibberellin (D) cytokinin

3. The metal compound used in the manufacture of yellow coloured glass is

   (A) cobalt compound

   (B) ferric compound

   (C) chromium compound

   (D) nickel compound

4. The device used to increase or decrease the input A.C. voltage is

   (A) motor (B) induction coil

   (C) transformer (D) commutator

5. A tall pea plant is crossed with a dwarf pea plant. If 24 pea plants are obtained in F_2 generation then the correct number of tall and dwarf pea plants are

(A) 18 tall and 6 dwarf

(B) 12 tall and 12 dwarf

(C) 6 tall and 18 dwarf

(D) 16 tall and 8 dwarf

6. The frequency of the current produced in A.C. dynamo depends on the

(A) rate of rotation of the armature

(B) strength of the magnetic field

(C) number of turns of the coil

(D) size of the dynamo

7. The general molecular formula of alkynes is

(A) C_nH_{2n-2} (B) C_nH_{2n+2}

(C) C_nH_{2n} (D) C_nH_{2n+1}

8. One of the factors responsible for the depletion of ozone layer is

(A) reforestation (B) use of biofuel

(C) use of detergents (D) use of aerosols

9. In the following chemical reaction metal represented by 'X' is

$$CuSO_4 + \boxed{X} \rightarrow \boxed{X}SO_4 + Cu$$

(A) Ag (B) Au

(C) Fe (D) Hg

10. The aqueous solution that conducts electricity among the following is

    (A) sugar solution

    (B) fructose solution

    (C) glucose solution

    (D) sodium chloride solution

11. The types of animal tissue are given in **Column-A** and their functions are given in **Column-B**. Match them and write the answer along with its letter :

$4 \times 1 = 4$

Column - A	***Column - B***
(A) Lymph	(i) attaches muscles to the bones
(B) Bone marrow	(ii) responds to the stimulus
(C) Tendon	(iii) produces antibodies
(D) Cartilage	(iv) connects one bone to another
	(v) brings bending and stretching movements of the body
	(vi) facilitates transport of substances in the body
	(vii) produces blood cells

Answer the following questions. $7 \times 1 = 7$

12. Wind mills cannot be installed in all the regions. Why ?

13. Doppler effect of sound is not experienced by the listener when the listener and the source of sound move with the same speed and in the same direction. Why ?

14. Name the male and female gametes producing structures found in gametophyte of bryophytes.

15. State modern periodic law.

16. What are the merits of glazing the earthenwares ?

17. The platelets count in the blood sample of a person is found to be $40,000/mm^3$. Then, from which disease that person is suffering ?

18. Write the two functional groups present in salicylic acid.

Answer the following questions. $26 \times 2 = 52$

19. Four elements of second period of periodic table is given below. Observe the table and answer the following questions :

Elements	Boron	Carbon	Nitrogen	Oxygen
Atomic number	5	6	7	8

(a) Name the element having (i) highest atomic size (ii) highest ionisation energy.

(b) Mention the relationship between atomic size and ionisation energy.

20. Nowadays biofuels are used as alternative to fossil fuels. Give scientific reasons.

21. A tuning fork vibrates 6000 times in 60 seconds. If the sound wave produced travels at 330 ms^{-1} then, find its wavelength.

22. Draw the diagram of a petrol engine. Label the following parts :

(i) Inlet valve

(ii) Piston.

23. Mention the modes of transmission of HIV infection.

24. Name the acids used in the extraction of amorphous silicon in the following cases.

    (i) To separate magnesium oxide

    (ii) To remove unreacted silica in the chemical reaction.

OR

Write the uses of the following silicon compounds :

(i) Silicon carbide

(ii) Zeolite.

25. Draw the diagram of a dicot plant and label its reproductive part.

26. Write the balanced chemical equations for the following chemical reactions.

    (i) When aluminium reacts with chlorine

    (ii) When sodium reacts with water.

OR

Molten cryolite is used in the extraction of aluminium. Give reason.

27. State Faraday's laws of electromagnetic induction.

28. A student observes a flying bat and decides that it belongs to the class aves. Whether the student's decision is correct ? Clarify with reasons.

29. What is tissue culture ? Mention any two advantages of this technology.

OR

What is hydroponics ? Mention any two advantages of hydroponics.

30. Draw the diagram of the apparatus used in electroplating. Label the following parts :

    (i) Anode

    (ii) Cathode.

31. Mention any four limitations of steam engine.

OR

What is a heat engine ? Mention the function of crank shaft in heat engine.

32. Ultrasonic sound waves sent by a ship return after 6s by reflection from the sea bed. If the speed of ultrasonic wave in sea water is 1530 ms^{-1} then, find the depth of the sea in kilometres.

33. How does the Caucasoid man differ from Mongoloid man in physical features ?

OR

How does the Caucasoid man differ from Congoid man in physical features ?

34. The data obtained in an experiment performed on the pressure and volume of given mass of gas at constant temperature is given in the following table :

Pressure (in pascals)	Volume (in litres)
$1{\cdot}5 \times 10^5$	10
$2{\cdot}5 \times 10^5$	X
$3{\cdot}0 \times 10^5$	5
Y	2

Based on the above data find the values of X and Y.

35. Mention any two differences between longitudinal waves and transverse waves.

36. Draw the diagram showing the structure of HIV. Label the following parts :

(i) RNA

(ii) Protein wall.

37. What is a diode ? Write two applications of diode.

38. Mention the four stages of manufacture of paper.

39. What is diabetes mellitus ? Write the symptoms of this condition.

40. Draw the diagram of D.C. dynamo. Label the following parts :

    (i) Coil on armature

    (ii) Split rings.

41. What is biotechnology ? Mention any two limitations of biotechnology.

42. What is saponification value ? Mention its importance.

43. State Graham's law of diffusion. Write its mathematical form.

44. Write any two differences between Xylem and Phloem tissues.

Answer the following questions. $5 \times 3 = 15$

45. Draw the diagram of a nuclear power reactor. Label the following parts :

    (i) Reflector

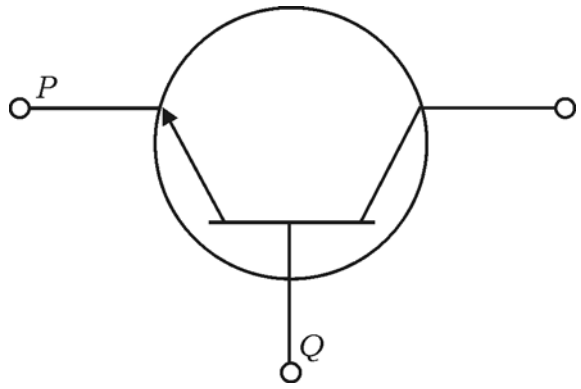
    (ii) Heat exchanger.

46. Explain the process of manufacture of sugar from sugarcane.

OR

Explain the process of manufacture of ethyl alcohol from molasses.

47. Observe the given circuit symbol of a transistor and answer the following questions :



(i) Name the regions of the transistor marked as *P* and *Q* and mention their function.

(ii) Mention the type of this transistor.

48. (i) Explain the technology of obtaining DNA fingerprint of an individual.

(ii) How does the DNA fingerprint technology help to solve legal disputes ?

OR

Write the importance of DNA with respect to the following :

(i) Heredity

(ii) Protein synthesis

(iii) Mutation.

49. Draw the diagram of blast furnace used in the extraction of iron. Label the following :

(i) Molten iron

(ii) Slag.

Answer the following questions. $3 \times 4 = 12$

50. (i) Explain the protostar stage in the stellar evolution.

(ii) State the law of conservation of momentum. Write the two factors on which acceleration of the rocket depend

OR

(i) Explain the black hole stage in the stellar evolution. Based on what factors the existence of black hole can be identified ?

(ii) Mention the relationship between orbital velocity and escape velocity. What is the meaning of the statement "Escape velocity is 11·2 kms^{-1}" on the earth.

51. Write the structural formula and any *two* uses of the following hydrocarbons :

(i) Benzene

(ii) Toluene.

52. Draw the diagram showing the structure of vertical section of the human eye. Label the following parts.

(i) Fovea

(ii) Lens.