

Padasalai.Net's Special - Centum Coaching Team

Question Paper (2016-17)

10th – Science – 2.30 hours – 75 marks

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Important note:

- (i) This question paper is designed to help students to understand the nature of tricky questions that may be expected in board exams.
- (ii) This question paper doesn't stick to the standards of historic board exams but is above it.
- (iii) This question paper is suitable for students who aim for centum and who would like to face challenges.
- (iv) Mark scored in this question paper has no relevance to the mark a student can score in board exam.

SECTION 1

Answer all the questions

15x1=15

1. Which of the below is not related to Variation
(evolution, individuality, adaptation, heredity)
2. Which of the below is a method of treatment involving medicine?
(yoga, antibiotics, counselling, physiotherapy)
3. Enlargement of the spinal cord in neck region is called
(lumbar plexus, medullary plexus, cauda equina, cervical plexus)
4. The whitish and flat structures in between the edible part of jack fruit represents
(carpels, inflorescence, perianth, sterile flowers)
5. The ____ half of the human heart receives and pumps out ____ blood.
(right – oxygenated, right – deoxygenated, left – deoxygenated)
6. Inside the human body, the exchange of respiratory gases take place at
(diaphragm, nostrils, alveoli, heart)
7. Chemical disinfection is a method employed in ____ treatment of sewage.
(secondary, tertiary, primary, bioremediation)
8. A solution with 73g of NaCl in 200g of water at room temperature forms a ____ solution.
(saturated, unsaturated, supersaturated, colloidal)

9. Which of the below is a dibasic acid? (H_3PO_4 , H_2SO_4 , HNO_3 , HCl)
10. Calcium is essential for (teeth, blood pigment, chlorophyll, antibiotic)
11. Alkenes are hydrocarbons that contain carbon to carbon ____ bond.
(single, double, triple)
12. Zero correction for negative zero error is
[$+(100 - n) \times L.C.$, $-(100 - n) \times L.C.$, $+(n \times L.C.)$, $-(n \times L.C.)$]
13. Force required to accelerate a 9 kg mass at 2.5 ms^{-2} is (11.5N, 22.5N, 7.5N, 16N)
14. One Coulomb is equal to the charge contained in 6.25×10^{18} electrons. What is the charge contained in 3 coulomb? (18.75×10^{18} , 6.25×10^{18} , 12.5×10^{18} , 25×10^{18})
15. Red light is used in traffic signal because it has longer wavelength. However, it bends the least in a prism. Why is that?
(light rays with greater wavelength refracts the most, refractive index is inversely proportional to wavelength, refractive index is directly proportional to wavelength)

SECTION II

Answer any twenty questions

20x2=40

16. Mendel observed tallness as a dominant character in the garden pea plant. Similarly, tongue rolling is a dominant character in man. In a group of 125 students, 75 can roll their tongue and 25 are non-rollers. Calculate the percentage of dominant and recessive characters.
17. (i) ____ is derived from amyloproteins of bacteria.
(ii) Stem cells multiply by ____.
18. Match:
(i) Cloning – Hepatitis B
(ii) Enzymes – genetically identical organisms
(iii) first vaccine – Dolly
(iv) Induced clone – biocatalysts
19. What does specific prevention relate to? Give an example.
20. Name the endocrine glands:
(i) Found in thyroid and secretes calcitonin.
(ii) A tiny gland, size of pea and attached to hypothalamus.
21. Draw the lateral section of ovule and label any two parts.
22. The dental formula of a mammal is written as $ICPM = 0123/0213$. What are the missing teeth?
23. Name the valves in human heart
(i) at the base of pulmonary artery
(ii) in the left auriculo-ventricular aperture
24. Mention the two unique characteristics of mammals.
25. List the four stages of aerobic respiration.
26. Differentiate autotrophic nutrition from heterotrophic nutrition and give examples.
27. List out the parts of the gastro-intestinal tract in the correct sequential order.

28. Assertion (A): Green chemistry is not the solution for all environmental problems.

Reason (R): Green chemistry is simply green washing.

- (i) Both A and R are true and R explains A.
- (ii) Both A and R are true but R doesn't explain A.
- (iii) Only A is true and R is false.
- (iv) A is false but R is true.

29. Assertion (A): Coal is a non-renewable resource.

Reason (R): Coal cannot be produced on a scale which can sustain its consumption rate.

- (i) Both A and R are true and R explains A.
- (ii) Both A and R are true but R doesn't explain A.
- (iii) Only A is true and R is false.
- (iv) A is false but R is true.

30. Match:

- (i) Nitrosomonas europaeae - secondary treatment
- (ii) Microfiltration - tertiary treatment
- (iii) Quiescent basin - bioremediation
- (iv) Microorganisms - primary treatment

31. What is waste water? Mention one method to reuse waste water.

32. What happens to the solubility in an exothermic process with regards to temperature?

33. Name the type of solution in following cases:

- (i) 40g of NaCl in 100g of water
- (ii) Sulphur dissolved in CS₂
- (iii) milk
- (iv) 20.7g of CuSO₄ in 100g of water at 20°C

34. Match:

(i) Number of particles	$\frac{(N_A \times \text{given mass})}{\text{GMM}}$
(ii) Number of moles	$\frac{\text{Molecular mass}}{\text{atomic mass}}$
(iii) Atomicity	$\frac{\text{Mass}}{\text{molecular mass}}$
(iv) Relative Atomic Mass	$\frac{\text{Mass of 1 atom of an element}}{\text{Mass of 1 atom of hydrogen}}$
	2 x vapour density

35. Two acids A and B were kept in beakers. Acid A undergoes partial dissociation in water, whereas acid B dissociates completely in water.

- i) How do you call the acids that dissociate partially?
- ii) Give an example for acid that dissociates completely in water.

36. Give an example for equation "Metal + acid → salt + hydrogen"

37. Guess me.

- i) I am formed when matrix and flux react.
- ii) I am the carbonate ore of calcium.

38. Fill in the blanks:

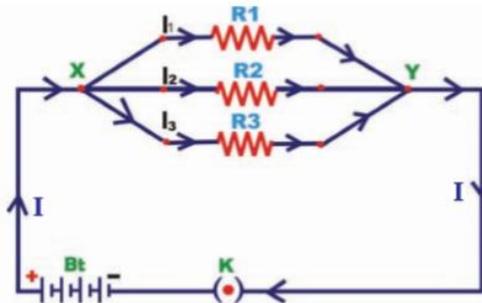
- i) The first group elements are called _____.
- ii) The yellowish shining metal weighed in carats is _____.

39. Write any two uses of ethanol.

40. Define one Newton.

41. The weight of an object on earth is 98N. Calculate its mass.

42. Write the formula to calculate equivalent resistance in the below circuit.



43. What is an electric circuit? Draw a sample.

44. Name the scientist best known:

- i) as the Italian who built the first battery
- ii) for the discovery of radioactivity

45. Give the position, size and nature of image formed by convex mirror when the object is placed at infinity.

46. Does magnetic monopole exist? Give reason.

47. An object is placed at a distance of 40 cm from a concave lens of focal length 20 cm. An erect and virtual image is formed at a distance of 15 cm from the lens. Calculate the magnification.

SECTION III

Answer any 4 questions by choosing one question from each part.

Each question carries five marks. Draw diagram wherever necessary. 4x5=20

PART I

48. Write notes on any two of the following.

- (i) Indirect transmission of diseases.
- (ii) Prevention of AIDS.
- (iii) Social dimension of health.

49. Match these parts with their functions.

(Medulla oblongata, cerebellum, forebrain, thalamus, cerebral cortex, hind brain, pons, hypothalamus)

- (i) several reflexes involved in the regulation of heart beat, blood vessel contraction, breathing, etc.
- (ii) Consists of cerebrum, thalamus and hypothalamus
- (iii) Regulation of sexual behaviour
- (iv) Coordinates the group movements of voluntary muscles as in walking and running
- (v) Motor and sensory areas

PART II

50. Specify suitable terms associated with each phenomenon below.

- (i) Balsam disperses seeds with a sudden jerk.
- (ii) Angiosperms with two cotyledons. Example: Castor, pea.
- (iii) A male gamete fuses with a female gamete.

(iv) In spirogyra, plant body forms small fragments and each fragment grows into a new individual.

(v) Transfer of pollen grains of a flower to stigma of another flower of a different plant of the same species.

51. (i) List out the harmful effects of coal burning.
(ii) What is green washing?

PART III

52. (i) State Avagadro's law.
(ii) Differentiate atom and molecule.
53. (i) Write any three evil effects of consuming alcohol.
(ii) Write the molecular formula for
a) 2-methyl-1-propanal
b) But-2-ene

PART IV

54. A bomb of mass 5kg, initially at rest, explodes into two parts of 3kg and 2 kg. The 3 kg mass travels at a velocity of 5m/s. At what velocity will the other part travel?
55. Explain Myopic and Hypermetropia with neat diagrams.

Please Send Your Answer Scripts To This Address:

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மாணவர்கள் செய்ய வேண்டியது என்ன?

1. [Click Here & Enter Your Details \(Students Only\)](#)
2. நமது பாடசாலை வலைதளத்தில் வழங்கப்படும் சிறப்பு வினாத்தாளை பிரிண்ட் எடுத்து விடுமுறை நாட்களில் முழுமையான, முறையான தேர்வு எழுதி வினாத்தாள் தயாரித்து வழங்கிய ஆசிரியருக்கு அனுப்பி வைக்க வேண்டும்.
3. A4 Size (Or) Legal Size உள்ள துணிக்கவர்கள் இரண்டு வாங்கிக்கொள்ள வேண்டும். ஒரு தாளில் வினாத்தாள் தயாரித்த ஆசிரியர் முகவரியை "பெறுநர்" பகுதியில் குறிப்பிட்டு அதில் தங்கள் விடைத்தாளை வைக்க வேண்டும்.
4. மற்றோரு கவரில் மாணவர்கள் தங்கள் சுயமுகவரியை "பெறுநர்" எனும் இடத்தில் எழுதி அதற்கு தேவையான அளவில் ஸ்டாம்ப்களையும் ஒட்டிய பிறகு, அக்கவரையும் விடைத்தாள் எழுதி அனுப்பும் கவருக்குள்ளேயே வைத்து அனுப்ப வேண்டும்.
5. ஒன்றுக்கும் மேற்பட்ட மாணவர்கள் இணைந்து விடைத்தாளை அனுப்பினால் மொத்தமாக ஒரே கவரில் அனுப்பலாம். ஆனால் ஒரு கவரில் மூன்று விடைத்தாள்களுக்கு மேல் இருக்கக்கூடாது.
6. ஆசிரியர்கள் தங்கள் விடைத்தாளை திருத்திய பிறகு தங்கள் சுயவிலாசமிட்ட கவரில் (Return Cover) வைத்து தங்களுக்கு விரைவில் திருப்பி அனுப்புவார்.
7. தங்கள் விடைத்தாளை உரிய ஆசிரியருக்கு அனுப்பி வைத்த தேதியிலிருந்து 3 வாரங்களுக்குள் தங்களுக்கு மீள கிடைக்காவிடில் இங்கு தரப்பட்டுள்ள "புகார் பதிவு படிவத்தில்" தங்கள் விவரத்தை பதிவு செய்யவும். [Click Here for Complaint Box!](#)
8. Slow Learners மீது மட்டும் கவனம் செலுத்தாமல் மீத்திறன் மிகுந்த மாணவர்களுக்கும் உதவும் நோக்கில், மாணவர்களின் நலன் கருதி, இச்சேவையில் தங்களை இணைத்துக்கொண்டுள்ள பாடசாலை ஆசிரியர் குழுவினை, மாணவர்கள் மிகுந்த பணிவுடன் தொடர்பு கொண்டு திருத்தப்பட்ட விடைத்தாள் குறித்த தங்கள் சந்தேகங்களையும், ஆலோசனைகளையும் அலைபேசி மூலமாக பெறலாம்.

இவ்வினாத்தாளுக்கான விடைகளை எழுதி அனுப்ப வேண்டிய முகவரி-

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If any doubt, Please contact our Padasalai's Centum Coaching Team Co-ordinator:

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