SHREE VASISHTHA VIDHYALAYA

CBSE – ENGLISH MEDIUM

2023-24

SUMMER ASSIGNMENT

CLASS – XI Science

Summer Assignment

Dear Students,

Greetings!

"Searching and learning is where the miracle process all begins". - Jim Rohn

Vacation is just one letter different than vocation. Summer vacation is the time when you can be more candid and creative with your studies. This is the time when intellectual and other skills can be nurtured and developed. Keeping the same thought these Holiday assignments are designed by your mentors to help you stay in touch with the concepts you've learned, to explore new skills and be creative in presentation.

Here are some ways by which you can make your holidays fun and productive.

- Read a newspaper daily. Explore some good books preferably related to the field you wish to pursue in future.
- Play indoor games like Ludo, carom board, scrabble, chess etc.
- Help your parents in small household chores like cleaning the cupboards, watering the plants, making the bed, etc.
- Complete the Holiday Home Work as per the instructions given.
- Most importantly: Limit your screen time.

Have an enjoyable Summer Vacation. Stay Safe.

Regards,

Dr. A. K. Gaur
Advisor

Ms. S. Srivastava
Principal

SUMMER ASSIGNMENT: 2023-24
Class: XI (Science Stream)

General Instructions:-

1. **All the subject assignments have to be done in separate files using project papers.**
2. **Submission date:- 14th June, (Wednesday)**
3. **The Summer Break is scheduled from 07th May 2023 – 11th June, 2023. The students will resume the school from 12th June, 2023.**

Note:- These assignments are a part of your internal assessment & will be marked accordingly out of 10.

ENGLISH CORE (301)

I. Read the passage below and answer the questions:

1. In life we sometimes have disagreements with people. It could be with your partner, with your boss, with your parents, or with a friend. When this happens, the important thing is to try not to let a calm discussion turn into a heated argument. But of course this is easier said than done.

2. The first thing I would say is that the way you begin the conversation is very important. Imagine you are a student and you share a flat with another student who you think isn't doing her share of the housework. If you say, 'Look, you never do your share of the housework. What are we going to do about it?', the discussion will very soon turn into an argument. It's much more constructive to say something like, 'I think we'd better have another look about how we divide up the housework. Maybe there's a better way of doing it.'

3. My second piece of advice is simple. If you're the person who is in the wrong, just admit it! This is the easiest and best way to avoid an argument. Just apologize to your flat mate, your parents, or your husband, and move on. The other person will have more respect for you in the future if you do that.

4. The next tip is don't exaggerate. Try not to say things like 'You always come home late when my mother comes to dinner' when perhaps this has only happened twice, or 'You never remember to buy the toothpaste." This will just make the other person think you're being unreasonable, and will probably make him or her stop listening to your arguments.

5. Sometimes we just can't avoid a discussion turning into an argument. But if you do start arguing with someone, it is important to keep things under control and there are ways to do this.

6. The most important thing is don't raise your voice. Raising your voice will just make the other person lose their temper too. If you find yourself raising your voice, stop for a moment and take a deep breath. Say 'I'm sorry I shouted, but this is very important to me', and continue calmly. If you can talk calmly and quietly, you'll find your partner will be more ready to think about what you are saying.

7. It is also very important to stick to the point. Try to keep to the topic you are talking about. Don't bring up old arguments, or try to bring in other' issues. Just concentrate on solving the one problem you are having, and leave the other things for another time. So, for example, if you're arguing about the housework, don't start talking about mobile phone bills as well.

8. And my final tip is that if necessary call 'Time out', like in a sports match. If you think that an argument is getting out of control, then you can say-to the other person, 'Listen, I'd rather talk about this tomorrow when we've both calmed down'. You can then continue the discussion the next day when perhaps both of you are feeling less tense and angry. That way there is much more chance that you will be able to reach an agreement. You'll also probably find that the problem is much easier to solve when you've both had a good night's sleep. Well, those are my tips.

9. But I want to say one last important thing. Some people think that arguing is always bad. This is not true. Conflict is a normal part of life, and dealing with conflict is an important part of any relationship, whether it's three people sharing a flat, a married couple, or just two good friends. If you don't learn to argue properly, then when a real problem comes along, you won't be prepared to face it together. Think of the smaller arguments as training sessions. Learn how to argue cleanly and fairly. It will help your relationship become stronger and last longer.

On the basis of your understanding of the above passage answer each of the following questions by selecting the most appropriate option from the given ones.

(a) _____ is easy to suggest but quite difficult to do.

(i) To have disagreements with people.
(ii) Not to let a peaceful discussion change into a heated argument.
(iii) "Never raise you voice"
(iv) To have heated argument with friends.

(b) In case we are wrong we should to avoid argument.
(i) flat mate (ii) exaggerate (iii) respect (iv) apologise

(c) The second paragraph suggests when we _____ others, it leads to argument.
(i) share the work with (ii) accuse
(iii) divide the work anew with (iv) only (i) & (ii)

(d) _____ can help strengthen relationships.
(i) Learning to argue clearly, (ii) Learning to avoid arguments,
(iii) Learning to argue fairly, (iv) Only (i) and (iii)

Answer the following questions briefly:

(i) What happens if a complaint is exaggerated?

(ii) Name two activities that help to keep arguments under control.

(iii) Raising our voice in an argument is not good. Why?

(iv) What happens if we don't learn to argue properly?

(v) How does 'Time Out' help in argument?

(vi) When is your partner in an argument more ready to think about your point of view?

(vii) Find words/phrases from the passage which mean the OPPOSITE as each of the following:
(i) Surely (Para-4) (ii) Initial (Para 8)

II. Answer the following questions briefly with 50-60 words.

1) Why was it hard for the author to believe that the grandmother was once young and pretty?

2) The grandmother has been portrayed as a very religious lady. What details in the story create this impression?

3) What was the happiest moment of the day for the grandmother?

4) Everybody including the sparrows mourned the grandmother's death. Elaborate.

5) Why does the poet feel emotional on seeing the photograph?

6) How has the poet expressed her sense of loss?

7) What are the unique traits of the Garoghlanian tribe?

8) Why was Aram delighted and frightened at the same time when he saw his cousin Mourad on a beautiful white horse?

9) How can we say that Aram and Mourad were very fond of riding?

10) What do you think induced the boys to return the horse to its owner?

III. Answer the following questions briefly with 120-150 words.

1) Write a character sketch of the author's grandmother by using the following words: affectionate, caring, kind and benevolent, religious, a strong woman.

2) Gradually, the author and the grandmother saw less of each other and their friendship was broken. Was the distance in the relationship deliberate or due to the demands of the situation?

3) The opening lines of the poem 'A Photograph' describe three young girls on a seaside holiday, Holidays are obviously times for de-stressing and enjoying one's leisure. Write on the need for holidays in modern stressful times.

4) The poem 'A Photograph' contains the line 'And the sea, which appears to have changed less, washed their terribly transient feet'. The idea conveyed is that human life is subject to change in terms of age and circumstances. Briefly express your views on how a human being should handle change.

5) Do you think John Byro recognised his horse? Why did he not accuse the boys of stealing his horse?

PHYSICS (042)

Q1. The base quantity among the following is
(a) Speed (b) Weight (c) Length (d) Area

Q2. Which of the following is a unit that of force?
(a) N m (b) N (c) N/m (d) N s

Q3. The number of significant figures in a pure number 410 is
(a) Two (b) Three (c) One (d) Infinite

Q4. The number of significant figures in the measured value 0.0204 is

(a) Five (b) Three (c) Four (d) Two

Q5. The number of significant figures in the measured value 26000 is

(a) Five (b) Two (c) Three (d) Infinite

Q6. The number of significant zeroes present in the measured value 0.020040, is

(a) Five (b) Two (c) One (d) Three

Q7. The number of significant figures in the measured value 4.700 m is the same as that in the value

(a) 4700 m (b) 0.047 m (c) 4070 m (d) 470.0 m

Q8. If a calculated value 2.7465 g contains only three significant figures, the two insignificant digits in it are

(a) 2 and 7 (b) 7 and 4 (c) 6 and 5 (d) 4 and 6

Q9. The dimensional formula for electric field is

(a) $[M^1L^1I^{-2}T^{-3}]$ (b) $[M^1L^2I^1T^{-3}]$ (c) $[M^{-1}L^1I^1T^{-3}]$ (d) $[M^1L^1I^{-1}T^{-3}]$

Q10. The pair of the quantities having same dimensions is

(a) Displacement, velocity (b) Time, frequency

(c) Wavelength, focal length (d) Force, acceleration

Q11. $\int \frac{1-\cos 2x}{1+\cos 2x}\, dx$

Q12. $\int_{\pi/2}^{9\pi/2} \cos x\, dx$

Q13. $\int cosec\ x\ (cosec\ x + \cot x)\, dx$

Q14. Find *dy/dx* of the function

(i) $y = Sin\ (ax^2 + b)$

(ii) $y = e^{2x} \log x$

Q15. The escape velocity v of a body depends on– (i) the acceleration due to gravity 'g' of the planet, (ii) the radius R of the planet. Establish dimensionally the relation for the escape velocity.

Q16. A calorie is a unit of heat energy and it equals about4.2 J, where 1 J = 4.2 kgm2 s -2. Suppose we employ a system of units in which the unit of mass equals α kg, the unit of length equals β m, the units of time is ϒ sec. show that a calorie has a magnitude 4.2 α -1 β -2 ϒ 2 in terms of the new units.

Q17. A famous relation in physics relates moving mass m to the rest mass m0 of a particle in terms of its speed v and the speed of the light c. A boy recalls the relation almost correctly but forgets where to put the constant c. He writes: $m = mo / (1 – v^2)^{1/2}$ Guess where to put the missing c.

Q18. If E,M,J and G respectively denote energy, mass, angular momentum and gravitational constant, Calculate the dimensions of EJ^2 /M^5G^2

Q19. What is meant by significant figures .State the rules for counting the number of significant figures in a measured quantity?

Q20. Give limitations of dimensional analysis.

CHEMISTRY (043)

Choose The Right Answer From The Given Options.[1 Marks Each] **[7]**

Q1. What will be the molarity of a solution, which contains 5.85g of NaCl(s) per 500mL?

(a) 4mol L^{-1} (b) 20mol L^{-1} (c) 0.2mol L^{-1} (d) 2mol L^{-1}

Q2. Zinc sulphate contains 22.65% zinc and 43.9% water of crystallisation. If the law of constant proportions is true then the weight of zinc required to produce 20g of the zinc sulphate crystals will be:

(a) 45.3g. (b) 4.53g. (c) 0.453g. (d) 453g.

Q3. The average molar mass of air becomes more in presence of which gas if present in air:

(a) H_2 (b) N_2 (c) C_2H_6 (d) CH_4

Q4. The average mass of the atom as compared to $\frac{1}{12}^{th}$ the mass of one carbon-12 atom is known as:

(a) Molecular mass. (b) Atomic mass.

(c) Relative molecular mass. (d) Relative atomic mass.

Q5. Which of the following statements is/ are incorrect?

(a) The weight of a substance can be determined very accurately by using an analytical balance.
(b) Volume is denoted in dm units.
(c) Density of a substance is its amount present per unit volume.
(d) Candela is the luminous intensity, that emits monochromatic radiation of frequency, $540 \times 10^{12} Hz$.

Q6. The chemical equation is balanced to satisfy one of the following laws in chemical reactions. This law is known as the:

(a) law of conservation of mass. (b) law of multiple proportions
(c) law of chemical equilibrium. (d) None of these.

Q7. What will be the molarity of pure water?

(a) 18M (b) 50.0M (c) 55.6M (d) 100M

A statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option. [3]

Q8. **Note:** In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given. Choose the correct option out of the choices given below each question.

Assertion (A): One atomic mass unit is defined as one twelfth of the mass of one carbon-12atom.

Reason (R): Carbon-12 isotope is the most abundunt isotope of carbon and has been chosen as standard.

i. Both A and R are true and R is the correct explanation of A.
ii. Both A and R are true but R is not the correct explanation of A.
iii. A is true but R is false.
iv. Both A and R are false.

Q9. **Note:** In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given. Choose the correct option out of the choices given below each question.

Assertion (A): The empirical mass of ethene is half of its molecular mass.

Reason (R): The empirical formula represents the simplest whole number ratio of various atoms present in a compound.

i. Both A and R are true and R is the correct explanation of A.
ii. A is true but R is false.
iii. A is false but R is true.
iv. Both A and R are false.

Q10. **Note:** In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given. Choose the correct option out of the choices given below each question.

Assertion (A): Combustion of 16g of methane gives 18g of water.

Reason (R): In the combustion of methane, water is one of the products.

i. Both A and R are true but R is not the correct explanation of A.
ii. A is true but R is false.
iii. A is false but R is true.
iv. Both A and R are false.

Given Section consists of questions of 2 marks each. [16]

Q11. Calculate the number of atoms in the following:
52g of He.

Q12. What will be the mass of one ^{12}C atom in g?

Q13. In a reaction
$A + B_2 \rightarrow AB_2$
Identify the limiting reagent, if any, in the following reaction mixtures.
100 atoms of A + 100 molecules of B.

Q14. In three moles of ethane (C_2H_6), calculate the following:
Number of moles of hydrogen atoms.

Q15. A sample of drinking water was found to be severely contaminated with chloroform, $CHCl_3$, supposed to be carcinogenic in nature. The level of contamination was 15ppm (by mass). Determine the molality of chloroform in the water sample.

Q16. Use the data given in the following table to calculate the molar mass of naturally occuringargon isotopes:

Isotope	Isotopic molar mass	Abundance
^{36}Ar	35.96755g mol^{-1}	0.337%
^{38}Ar	37.96272g mol^{-1}	0.063%
^{40}Ar	39.9624g mol^{-1}	99.600%

Q17. If 10 volumes of dihydrogen gas reacts with five volumes of dioxygen gas, how many volumes of water vapour would be produced?

Q18. In three moles of ethane (C_2H_6), calculate the following:
Number of moles of carbon atoms.

Given Section consists of questions of 3 marks each. **[21]**

Q19. Calculate the mass of sodium acetate (CH_3COONa) required to make 500mL of 0.375 molar aqueous solution. Molar mass of sodium acetate is 82.0245 g mol^{-1}.

Q20. Dinitrogen and dihydrogen react with each other to produce ammonia according to the following chemical equation:
$N_2(g) + H_2(g) \rightarrow 2NH_3(g)$
Calculate the mass of ammonia produced if $2.00 \times 103g$ dinitrogen reacts with $1.00 \times 103g$ of dihydrogen.

Q21. How are 0.50mol Na_2CO_3 and 0.50M Na_2CO_3 different?

Q22. A compound on analysis was found to contain C = 34.6%, H = 3.85%, and 0 = 61.55%. Calculate its empirical formula.

Q23. If 2L of N_2 is mixed with 2L of H at a constant temperature and pressure, then what will be the volume of NH_3 formed?

Q24. How many grams of $KClO_3$ must be decomposed to prepare 3.36 litres of oxygen at STP?
(Atomic weight of K = 39, Cl= 35.5, 0 = 16u)

Q25. The average molar mass of a mixture of methane (CH_4) and ethane (C_2H_4) present in the ratio of a : b is found to be 20.0g mol^{-1}. If the ratio were reversed, what would be the molar mass of the mixture?

Given Section consists of questions of 5 marks each. **[25]**

Q26. Determine the molecular formula of an oxide of iron, in which the mass per cent of iron and oxygen are 69.9 and 30.1, respectively.
Note: Given that the molar mass of the oxide is 159.69g mol^{-1}

Q27. Calculate the atomic mass (average) of chlorine using the following data:

	% Natural Abundance	Molar Mass
^{35}Cl	75.77	34.9689
^{37}Cl	24.23	36.9659

Q28. What is the concentration of sugar ($C_{12}H_{22}O_{11}$) in mol L^{-1} if its 20g are dissolved in enough water to make a final volume up to 2L?

Q29. Calculate the concentration of nitric acid in moles per litre in a sample which has a density, 1.41g mL^{-1} and the mass per cent of nitric acid in it being 69%.

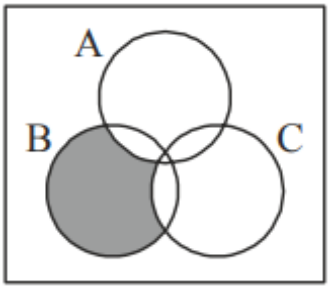
Q30. Calculate the molarity of a solution of ethanol in water, in which the mole fraction of ethanol is 0.040 (assume the density of water to be one).

MATHEMATICS (041)

Q1. The set {x: x is a positive integer less than 6 and $3^x - 1$ is an even number} in roster form is
a) {1, 2, 3, 4, 5} b) {1, 2, 3, 4, 5, 6} c) {2, 4, 6} d) {1, 3, 5}

Q2. Which of the following has only one subset?
a) { } b) {4} c) {4, 5} d) {0}

Q3. The shaded region in the given figure is:



a) B ∩ (A ∪ C) b) B ∪ (A ∩ C) c) B ∪ (A – C) d) B – (A ∪ C)

Q4. If A = {1, 2, 4}, B = {2, 4, 5}, C = {2, 5}, then (A – B) × (B – C) is

a) {(1, 2), (1, 5), (2, 5)} b) {(1, 4)}

c) (1, 4) d) None of these

Q5. The set of real numbers {x: a < x < b} is called:

a) open interval b) closed interval

c) semi-open interval d) semi-closed interval

Q6. Let A = {1, 2, 3}. The total number of distinct relations that can be defined over A, is

a) 2^9 b) 6 c) 8 d) 2^6

Q7. Let f = {(1, 1), (2, 3), (0, –1), (–1, –3)} be a linear function from Z into Z, then f(x) =

a) 2x – 1 b) 2x c) 2x + 1 d) –2x + 1

Q8. If P = {a, b, c} and Q = {r}, then

a) P × Q = Q × P b) P × Q ≠ Q × P c) P × Q ⊂ Q × P d) None of these

Q9. The relation R defined on set A = {x: |x| < 3, x • I} by R = {(x, y): y = |x|} is

a) {(–2, 2), (–1, 1), (0, 0), (1, 1), (2, 2)}

b) {(–2, –2), (–2, 2), (–1, 1), (0, 0), (1, –2), (1, 2), (2, –1), (2, –2)}

c) {(0, 0), (1, 1), (2, 2)}

d) None of these

Q10. The domain of the function $f(x) = \frac{|x+3|}{x+3}$

a) {–3} b) R – {–3} c) R – {3} d) R

Q11. Let A and B be two sets. Then, prove that $A = B \Leftrightarrow A \subseteq B$ and $B \subseteq A$.

Q12. Let A= {1, {2}, {3,4}, 5}. Which of the following are incorrect statements? Rectify each:

a) $2 \in A$ b) $\{2\} \subset A$ c) $\{\varphi\} \subset$A d) $\{1,2,3,4\} \subset$ A

Q13. If $A = \{\frac{1}{x} : x \in N \text{ and } x < 8\}$ and $A = \{\frac{1}{2x} : x \in N \text{ and } x \leq 4\}$, Find:

a) $A \cup B$ b) $A \cap B$ c) $A - B$ d) $B - A$

Q14. For any two sets A and B, Prove that:

(i) $(A \cup B)' = (A' \cap B')$ (ii) $(A \cap B)' = (A' \cup B')$

Q15. For any sets A, B and C, Prove that:
$A - (B \cup C) = (A - B) \cap (A - C)$

Q16. If $A = \{x: x \in R, x < 5\}$ and $B = \{x: x \in R, x > 4\}$ find $A \cap B$.

Q17. Let A and B be sets. If $A \cap X = B \cap X = \varphi$ and $A \cup X = B \cup X$ for some set X, show that $A = B$.

Q18. If $(A \cup B) = (A \cap B)$ then prove that $A = B$.

Q19. If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}, A = \{1, 2, 3, 4\}, B = \{2, 4, 6, 8\}$ and $C = \{1, 4, 5, 6\}$ then find (i) $(A \cup B)'$ (ii) $(A \cap C)'$ (iii) $(B - C)'$

Q20. Let $A = \{a, b, c, e, f\}, B = \{c, d, e, g\}$ and $C = \{b, c, f, g\}$ be subsets of the set $U = \{a, b, c, d, e, f, g, h\}$.

Draw the Venn diagram to represent the following sets:

(i) $A \cup (B \cap C)$ (ii) $A - (B \cap C)$ (iii) $A - B$

Q21. Find the values of a and b, when: $(a - 2, 2b + 1) = (b - 1, a + 2)$

Q22. Let $A \times B = \{(a, b): b = 3a - 2\}$. If $(x, -5)$ and $(2, y)$ belong to $A \times B$, find the values of x and y.

Q23. For any sets A, B and C, prove that $A \times (B - C) = (A \times B) - (A \times C)$.

Q24. Let $A = \{1,2\}$ and $B = \{2,3\}$. Then write all possible subsets of $A \times B$.

Q25. Let $R = \{(x, y): x, y \in Z \text{ and } x^2 + y^2 \leq 4\}$. Write R in roaster form. Find domain(R) and Range(R).

Q26. Let $g = \{(1,2), (2,5), (3,8), (4,10), (5,12), (6,12)\}$ Is g is a function? If Yes find its domain and range. If no, give reason.

Q27. If g is a function defined from R to R as follows: $g(x) = x^2 + 1$. find the range of the function.

Q28. Let f and g be real function, defined by $f(x) = \frac{1}{(x+4)}$ and $g(x) = (x+4)^3$.
Find: (i) (f + g) (x) (ii) $\frac{f}{g}$ (x).

Q29. Let R^+ be the set of all positive real number. Let $f: R^+ \to R: f(x) = log_e x$.
Find: (i) range(f). (ii) $\{x: x \in R^+ \text{and } f(x) = -2\}$.

Q30. Find the domain and range of real function: $f(x) = \sqrt{4 - x^2}$

BIOLOGY (044)

Q1. Organisms living in salty areas are called as
(a) Methanogens (b) Halophiles
(c) Heliophytes (d) Thermoaciophiles

Q2. Naked cytoplasm, multinucleated and saprophytic are the characteristics of
(a) Monerans (b) Protists (c) Fungi (d) Slime moulds

Q3. Contagium vivum fluidum was proposed by
(a) D. J. Ivanowsky (b) M. W. Beijerinck
(c) Stanley (d) Robert Hooke

Q4. Association between mycobiont and phycobiont are found in
(a) Mycorrhiza (b) Root (c) Lichens (d) BGA

Q5. With respect to the fungal sexual cycle, choose the correct sequence of events.
(a) Karyogamy, plasmogamy and meiosis (b) Meiosis, plasmogamy and karyogamy
(c) Plasmogamy, karyogamy and meiosis (d) Meiosis, karyogamy and plasmogamy

Q6. Viruses are non-cellular organisms but replicate themselves once they infect the host cell. To which of the following kingdom do viruses belong to?
(a) Monera (b) Protista (c) Fungi (d) None of these

Q7. Which of the following 'suffixes' used for units of classification in plants indicates a taxonomic category of 'family'.
(a) Ales (b) Onae (c) Aceae (d) Ae

Q8. The term 'systematics' refers to:
(a) Identification and study of organ systems of plants and animals
(b) Identification and preservation of plants and animals
(c) Diversity of kinds of organisms and their relationship
(d) Study of habitats of organisms and their classification

Q9. Genus represents
(a) An individual plant or animal
(b) A collection of plants or animals
(c) A group of closely related species of plants or animals
(d) None of these

Q10. As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics
(a) Will decrease (b) Will increase
(c) Remain same (d) May increase or decrease

Q11. What is the principle underlying the use of cyanobacteria in agricultural fields for crop improvement?

Q12. Diatoms are also called as 'pearls of ocean', why? What is diatomaceous earth?

Q13. Match the following and choose the correct option:

Column I	Column II
A) Family	i. tuberosum
B) Kingdom	ii. Polymoniales
C) Order	iii. Solanum
D) Species	iv. Plantae
E) Genus	v. Solanacea

Q14. In a given habitat we have 20 plant species and 20 animal species. Should do we call this 'diversity' or 'biodiversity'? Justify your answer.

Q15. What were the disadvantage of two kingdom classification?

Q16. A scientist has come across a plant which he feels is a new species. How will he go about its identification, classification and nomenclature?

Q17. With reference to Brassica compestris linn.

(a) Give the common name of the plant
(b) What do the first two words of the name indicate?
(c) Why is the scientific name written in italics?
(d) What does "linn." mean?

Q18. Define the following:

(a) Phylum (b) Class (c) Order (d) Genus

Q19. Differentiate between taxonomy and systematic

Q20. What is the Binomial system of nomenclature? Who proposed this system? Why is binomial nomenclature the most acceptable mode of naming organisms?

Q21. Explain the guidelines principles for nomenclature.

Q22. What is the sexual cycle in kingdom fungi?

Q23. Discuss the salient features of viruses with the help of a diagram?

Q24. Some symbiotic organisms are very good pollution indicators and are composed of a chlorophyll-us and a non- chlorophyllous member. Describe them.

Q25. Archaebacteria

These bacteria are special since they live in some of the harshest habitats such as extreme salty areas (halophiles), hot springs (thermoacidophiles) and marshy areas (methanogens). Archaebacteria differ from other bacteria in having a different cell wall structure and this feature is responsible for their survival in extreme conditions. Methanogens are present in the gut of several ruminant animals such as cows and buffaloes and they are responsible for the production of methane (biogas) from the dung of these animals.

Eubacteria

There are thousands of different eubacteria or 'true bacteria'. They are characterised by the presence of a rigid cell wall, and if motile, a flagellum. The cyanobacteria (also referred to as blue-green algae) have chlorophyll a similar to green plants and are photosynthetic autotrophs. The cyanobacteria are unicellular, colonial or filamentous, freshwater/marine or terrestrial algae. The colonies are generally surrounded by gelatinous sheath. They often form blooms in polluted water bodies. Some of these organisms can fix atmospheric nitrogen in specialised cells called heterocysts, e.g., Nostoc and Anabaena. Chemosynthetic autotrophic bacteria oxidise various inorganic substances such as nitrates, nitrites and ammonia and use the released energy for their ATP production. They play a great role in recycling nutrients like nitrogen, phosphorous, iron and sulphur. Heterotrophic bacteria are most abundant in nature. The majority are important decomposers. Many of them have a significant impact on human affairs. They are helpful in making curd from milk, production of antibiotics, fixing nitrogen in legume roots, etc. Some are pathogens causing damage to human beings, crops, farm animals and pets. Cholera, typhoid, tetanus, citrus canker are well known diseases caused by different bacteria. Bacteria reproduce mainly by fission. Sometimes, under unfavourable conditions, they produce spores. They also reproduce by a sort of sexual reproduction by adopting a primitive type of DNA transfer from one bacterium to the other. The Mycoplasma are organisms that completely lack a cell wall. They are the smallest living cells known and can survive without oxygen. Many mycoplasma are pathogenic in animals and plants.

(1) _____bacteria is responsible for formation of biogas from cow dung / organic waste.

(a) cyanobacteria (b) Halophiles
(c) Thermoacidophiles (d) Methanogens

(2) _____ are the bacteria that can grow and thrive in salty areas.

(a) Methanogens (b) Halophobic
(c) Halophiles (d) Thermoacidophiles

(3) True bacteriaare characterised by _____.

(a) Rigid Cell wall (b) Flagellum present for locomotion

(c) Both a and b (d) None of the above

(4) Name the eubacteria which is also referred as blue green algae.

(5) What is heterocyst?

(6) What is the thermoacidophiles?

Q26. Brinjal and potato belong to the same genus Solanum, but to two different species. What defines them as seperate species?

Q27. A scientist has come across a plant which he feels is a new species. How will he go about its identification, classification and nomenclature?

Q28. Define a taxon. What is meant by taxonomic hierarchy? Give a flow diagram from the lowest to highest category for a plant and an animal. What happens to the number of individuals and number of shared characters as we go up the taxonomical hierarchy?

Q29. What are the 8 levels of taxonomy?

Q30. Write the full form for the following code – ICVN, ICBN, ICZN, and ICNB.

Q31. Name the book written by Carolus Linnaeus on the classification of organisms.

INFORMATICS PRACTICES (065)

Q1. Multiple choice Questions:-

1. Arrange memory units in ascending order as per their capacity.

(a) TB<GB<MB<KB (b) GB<TB<KB<MB

(c) MB<KB<GB<TB (d) KB<MB<GB<TB

2. ASCII stands for

(a) American Standard Code for International Information
(b) American Standard Code for Information Interchange
(c) American Standard Code for International Interchange
(d) American Standard Code for Internet Information

3. _____ is a component of the processor that performs arithmetic, comparison and logical operations.

(a) ALU (b) MU (c) CPU (d) CU

4. Ramu bought a new laptop, he noticed that there was a flat surface to control the pointer instead of a mouse. What is the flat surface called?

(a) Mousepad (b) Touchpad (c) Keypad (d) Touch Screen

5. Pen drive is known as

(a) Flash Drive (b) PD (c) Scan Drive (d) Short Drive

6. Device driver handles all the operation except

(a) System booting (b) System call from user process

(c) User level request (d) Memory management

7. In Information Technology, Information means

(a) Output returned by computer after processing data
(b) Any report generated by computer
(c) Plural of data
(d) Collection of raw facts and figures

8. The central processing unit

(a) Is operated from control panel (b) Is managed by input device

(c) Controls all input, output and processing (d) Controls memory and data transfer.

9. _____ = 1024 × 1024 × 1024 Bytes

(a) 1KB (b) 1MB (c) 1GB (d) 1TB

10. Which of the following is not the part of CPU?

(a) Registers (b) Processor (c) Flash Drive (d) Motherboard

11. Instructions to the computer is given through

(a) Program (b) Input (c) Hardware (d) Memory

12. Keyboard designed for visually impaired is termed as

(a) Special keyboard (b) Multimedia keyboard

(c) Braille keyboard (d) Thermal keyboard

13. Control unit CU of the computer

(a) Perform logical operations in computer
(b) Controls sequential instructions executions
(c) Guides data from through the computer's memory
(d) b and c
(e) All a, b and c

14. Scanner is used to

(a) Capture and store information in graphic format
(b) Capture information
(c) Create graphics
(d) Store information

15. Data entered through input device is temporarily stored in

(a) ROM (b) Hard Disk (c) RAM (d) Catch Memory

16. Which of the following is considered as main memory of computer?

(a) ROM (b) RAM (c) HDD (d) Catch Memory

17. _____ known as father of computer who invented _____.

(a) Charles Babbage, Additional engine (b) Charles Babbage, analytical engine

(c) Herman Hollerith, tabulating machine (d) John Von Neman, EDVAC

18. Select the correct statement for Catch memory

i. Placed between the CPU (Processor) and Primary Memory (RAM)
ii. It stores copies of data from frequently accessed primary locations

(a) i true, ii false (b) i false, ii true (c) both true (d) both false

Q2. Answer the following questions: -

19. Who founded Moore Law and what he predicted about it?
20. Write the full form of EDVAC?
21. Difference between HDD and SSD?(2 points each)
22. Write any one security concerns associated with data?
23. Explain System Utilities with example.
24. What is punched card?
25. Write the full form of VLSI?

PHYSICAL EDUCATION (048)

VERY SHORT TYPE OF QUESTION

Q1. Where Lakshmi bai National Institute of Physical Education (LNIPE) is situated?

(a) New Delhi (b) Patiala (c) Kerela (d) Gwalior

Q2. SAI Stands for

(a) Sports Appointment of India (b) Sports Academic of India

(c) Sports Authority of India (d) Sports Accreditation of India

Q3. After competing M.P.Ed. you can teach Classes

(a) I to VIII (b) I to V (c) VI toVIII (d) XI toXII

Q4. The Ministry of Youth Affairs and Sports, Govt. of India launched the Khelo India Programme in

(a) 2013-2014 (b) 2015-2016 (c) 2011-2012 (d) 2017-2018

Q5. "Helping others to feel safe from violence" is an example of which of the following Olympic value?

(a) Friendship (b) Respect (c) Excellence (d) Trust

Q6. "Playing beyond the rules of the game" is violation of which of the following educational value?

(a) Pursuit of Excellence (b) Balance Between Body, Will and Mind

(c) Joy of Effort (d) Fair Play

Q7. The Ancient Olympic Games started in

(a) 776 BC (b) 394 AD (c) 1896 (d) 1986

Q8. The word "Altius" in the Olympic motto means

(a) Faster (b) Higher (c) Stronger (d) Heavier

VERY SHORT TYPE OF QUESTION

Q9. What do you think Wearable Gears and Sports Equipment?

Q10. What do you understand by Olympism?

Q11. Write a short note on the Olympic flag.

Q12. What are advantages of using technology in sports?

Q13. What is Khelo India Programme?

Q14. Describe any one of Olympic core Value.

Q15. Describe the formation of the IOA.

DESCRIPTIVE TYPE OF QUESTION

Q16. Write down few lines on different committee constituted for the purpose of development of physical Education in India after Independence.

Q17. Discuss the developmental process of first professional institution of physical education after independence.

Q18. What are advantages of using technology in sports?

Q19. What do you think Wearable Gears and Sports Equipment

Q20. Classify various playing surfaces in sports?

Q21. Classify various playing surfaces in sports?

Q22. What are the objectives of Physical Education?

Q23. What is the need of sports competition in school? Discuss in detail.

Q24. Explain the Physical Education development in India after Independence.

Q25. Do you think 'Sports for Peace and Development' will work for restoration of peace in Jammu and Kashmir? Support your answer with evidence.

Q26. Will the increase in professional sports leagues bring any transformation in Indian sporting culture? Justify your answer.

Q27. Describe any one of Olympic core Value.

Q28. Describe Olympic Educational Values with suitable examples.

Q29. How did the Modern Olympic games originate?

Q30. Describe the Olympic oath.

PSHYCOLOGY (037)

Q1. Where was the first lab of Psychology developed?

Q2. Who is the father of Psychology?

Q3. What is Psychology?

Q4. What is Basic and Applied Psychology? How they are different?

Q5. Explain Psychology in Everyday life?

Q6. Explain in details various schools of Psychology?

Q7. Explain how Psychology and other disciplines are related? Explain any four.

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Understanding Chat-GPT, And Why It's Even Bigger Than You Think

BY JOSHBERSIN · PUBLISHED JANUARY 22, 2023 · UPDATED FEBRUARY 28, 2023

Everyone has an opinion about Chat-GPT and AI. Engineers and entrepreneurs see it as a new frontier: a bold new world to invent products, services, and solutions. Social scientists and journalists are worried, with one prominent NYT author Ezra Klein calling it an "information warfare machine." What has god wrought?

Let me just say up front, I see enormous possibilities here. And as with all new technologies, we cannot fully predict the impact quite yet. There will be problems and failures, but the ultimate story is "hooray."

What Is Chat-GPT?

To put it quite simply, this technology (and there are many others like it) is what is often called a "language machine" that uses statistics, reinforcement learning, and supervised learning to index words, phrases, and sentences. While it has no real "intelligence" (it doesn't know what a word "means" but it knows how it is used), it can very effectively answer questions, write articles, summarize information, and more.

Engines like Chat-GPT are "trained" (programmed and reinforced) to mimic writing styles, avoid certain types of conversations, and learn from your questions. In other words, the more advanced models can refine answers as you ask more questions, and then store what it learned for others. (Read Terry Sejnowski's just-released in-depth explanation to understand why they seem human.)

While this is not a new idea (we've had chatbots for a decade, including Siri, Alexa, Olivia, and more), the level of performance in GPT-3.5 (the latest version) is astounding. I've asked it questions like "what are the best practices for recruiting" or "how do you build a corporate training program" and it answered pretty well. Yes, the answers were quite elementary and somewhat incorrect, but with training they will clearly get better.

And it has lots of other capabilities. It can answer historic questions (who was president of the US in 1956), it can write code (Satya Nadella believes 80% of code will be automatically generated), and it can write news articles, information summaries, and more.

One of the vendors I talked with last week is using a derivative of GPT-3 to create automatic quizzes from courses and serve as a "virtual Teaching Assistant." And that gets me to the potential use cases here.

(PS in some ways the chatbot itself may be a commodity: there are at least 20 start-ups with highly funded AI teams building derivative or competing products.)

Read the rest of the article at: https://joshbersin.com/2023/01/understanding-chat-gpt-and-why-its-even-bigger-than-you-think/