DAV PUBLIC SCHOOL, BISTUPUR, JAMSHEDPUR JHARKHAND ZONE - E

HOLIDAY ASSIGNMENT   SESSION 2024-25

ENGLISH

1. Research on sailing terminology and parts of a boat and gather information about Isle Amsterdam.
2. Cut out 5 clippings of Classified Ads under the heads:
   - ➢ FOR SALE
   - ➢ TO LET
   - ➢ SITUATION VACANT
   - ➢ EDUCATIONAL
3. Prepare a write up on an unforgettable journey you had with your family during your childhood days. Paste a photograph of the same too.
4. Prepare a Thank You Card for your grandmother and in it mention one of her characteristic traits that inspires you the most.

MATHEMATICS

Students are requested to do following activities in lab manual copy only.

Activity – 1 . To represent set theoretic operations using venn - diagrams practically.

- $A \cup B$
- $A \cap B$
- $A - B$
- $B - A$
- $A \Delta B$

Activity – 2 To verify distributive law for the three given non empty sets A , B and C :

- $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
- $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

Also Show following proof by using venn diagram method

- $(A \cup B) - C = (A - C) \cup (B - C)$
- $A - (B \cup C) = (A - B) \cap (A - C)$

Activity – 3 To interpret geometrically the meaning of i and its integral powers.

PHYSICS

M.C.Q.-

1. If the displacement of a given body is found to be directly proportional to the cube of the time elapsed, then the magnitude of the acceleration of the body is
(a) zero   (b) constant but not zero   (c) increasing with time   (d) decreasing with time

2. Which of the following physical quantity has the dimensional formula $[M^1L^2T^{-3}]$
(a) work   (b) power   (c) work   (d) impulse

3. Which of the following have the same dimensions as Plank's constant?
(a) Moment of momentum   (b) Moment of fierce
(c) Momentum/distance   (d) Force/distance

ASSERTION AND REASON TYPE QUESTIONS
Directions: The question numbers 1 to 3 consist of two statements one labeled Assertion and the other labeled Reason . Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.
(1x3=3)
 (a) If both A and R are true and R is the correct explanation of A
 (b) If both A and R are true but R is NOT the correct explanation of A
 (c) If A is true but R is false
 (d) If A is false but R is true

4. Assertion : The direction of velocity of an object can be reversed with constant acceleration.
 Reason: A ball projected upward reverse its direction under the effect of gravity.

 5.Assertion : A body moving with decreasing speed may have increased acceleration.
 Reason : The speed of body decreases when acceleration of body is opposite to velocity.

6.Assertion : Energy cannot be divided by volume.
Reason : Dimensions for energy and volume are different.

Case Study Based Questions
Following question is case study-based question which has five sub parts of multiple-choice questions. Attempt any four sub parts. Each sub part of question carries 1 mark.

When an object is in motion, its position changes with time. But how fast is the position changing with time and in what direction? To describe this, we define the quantity average velocity. Average velocity is defined as the change in position or displacement (Δx) divided by the time intervals (Δt), in which the displacement occurs:

$$\mathbf{V} = \frac{x2 - x1}{t2 - t1} = \frac{\Delta \mathbf{x}}{\Delta \mathbf{t}}$$

Where x_2 and x_1 are the positions of the object at time t_2 and t_1, respectively. The SI unit for velocity is m/s or m s^{-1}, although km h^{-1} is used in many everyday applications. Like displacement, average velocity is also a vector quantity. Average speed is defined as the total path length travelled divided by the total time interval during which the motion has taken place:

Average speed = Total path length/ Total time interval.

Average speed has obviously the same unit (m s^{-1}) as that of velocity. But it does not tell us in what direction an object is moving. Thus, it is always positive (in contrast to the average velocity which can be positive or negative). If the motion of an object is along a straight line and in the same direction, the magnitude of displacement is equal to the total path length.

The velocity at an instant is defined as the limit of the average velocity as the time interval dt becomes infinitesimally small. In other words

$$\mathbf{V} = \lim_{dt \to 0} \frac{dx}{dt} \quad , \quad \mathbf{V} = \frac{dx}{dt}$$

Note that for uniform motion, velocity is the same as the average velocity at all instants. Instantaneous acceleration is defined in the same way as the instantaneous velocity

$$a = \lim_{dt \to 0} \frac{dv}{dt} \quad , \quad a = \frac{dv}{dt}$$

7. For uniform motion instantaneous velocity is same as

a) Average velocity   b) Average acceleration   c) Instantaneous speed d) None of these

8. If velocity is constant then

a) Acceleration is zero   b) Acceleration is positive c) Acceleration is negative d) None of these

9. A 250 m long train is moving with a uniform velocity of 45 kmh^{-1}. The time taken by the train to cross a bridge of length 750 m is

a) 56 s   b) 68 s   c) 80 s   d) 92 s

10. The motion of a particle along a straight line is described by equation $x = 8 + 12 t - t^3$ where x is in metre and t in second. The retardation of the particle when its velocity becomes zero is

A) 24 m/s^2 B) Zero   C) 6 m/s^2 d) 12 m/s^2

11. The numerical ratio of velocity to speed is

a) less than 1   b) greater than 1

c) either less than 1 or greater than 1

d) either less than 1 or equal to 1

12. Write the dimensional formula of following :-

(a) Boltzmann constant   (b) Resistance R

13. The value of gravitational constant is G = 6.67 x10^{-11} N-m2 /kg2 in SI units. Convert it into CGS system of units.

14.(i)What is meant by significant figures in a measured quantity ?

   (ii) (a) Subtract 2.5x 10^{-6} from 4.0 x 10^{-4} with due regard to significant figures.

      (b) 5.74 g of a substance occupies 1.2 cm^3 space . Express its density keeping significant figures in view.

15. The velocity v of a particle depends upon the time t according to the equation

$v = a + b t + \frac{c}{d+t}$ .Write the dimensions of a, b, c and d.

16. Derive by the method of dimension, an expression for the volume of a liquid flowing out per second(V) through a narrow pipe . Assume that the rate of flow of liquid depends on the coefficient of viscosity (η) of the liquid, the radius r of the pipe, pressure gradient (p/l) across the pipe.

16. If x=2at-5bt^2, where x is in metres and t is in seconds, find dimensions of a/b.

17. If pressure p, velocity v and time t are taken as fundamental physical quantities, then find the dimensional formula for force.

18. If pressure depends on distance x as $P = \alpha/\beta \exp(-\alpha x/k\theta)$, α and β are constant, k Boltzmann's constant and θ is temperature, then find the dimension of β.

19. Evaluate to correct significant figures :-

   a) $122.3 + 385.34$ b) 876×4.25 c) $326/4.3$ d) $(2.0)^{10}$ e) $(79.62)^{1/2}$

CHEMISTRY

1.Calculate the wave length, frequency and wave number of a light whose period is 2×10^{-10} sec.
2. Calculate the mass percent of different elements in Na_2SO_4.

3. Read the following and answer the questions given below.

   The atomic number of Chromium is 24.Its electronic configuration in ground state is $1s^2$, $2s^2$, $2p^6$, $3s^2$, $3p^6$, $4s^1$, $3d^5$. Chromium atom by losing 3 electrons forms Cr^{3+} ions. A Chromium atom contains 17% more neutrons than the protons. Now answer the following questions:

      i)   What is the number of unpaired electrons in Cr^{3+} ion ?
      ii)   In Chromium atom, what is the number of electrons having n=3 and m=0?
      iii)   What are the group number and period of Chromium in the periodic table?
      iv)   What is the number of occupied sub-shells in Cr^{3+} ion?

4. It is found that 16.50g of metal combines with oxygen to form 35.60g of metal oxide. Calculate the percentage of metal and   oxygen in the compound.
5. Calculate the energy and frequency of the radiation emitted when an electron jumps from n=3 to n= 2 in a hydrogen atom.

6. Calculate the mass of $KClO_3$ necessary to produce 1. 23g O_2.

7.Calculate the mole fraction of benzene in a solution which is 30% by mass in CCl_4.

COMPUTER

   I.   DATA REPRESENTATION:-

1.   Convert 75 from decimal to base 2

2.   Convert 1010 0111 1011 1111 from binary to base 16

3.   Convert 111 011 010 from binary to base 8

4.   Convert 15 from base 8 to binary

5.   Convert 6 from decimal to binary

6.   Convert 217 from decimal to base 2

7. Convert 101 111 from binary to base 8

8. Convert 43 from octal to binary

9. Convert b2f from base 16 to base 2

10. Convert 010 110 110 from binary to base 8

II Answer the following questions:-

1. Write any two differences between compilers and interpreters.
2. Write any two differences between RAM and ROM
3. Write any two differences between primary memory and secondary memory.
4. What is the difference between system software and application software?
5. What is the significance of unicode.

III. Answer the following questions:

1. Write two examples of Application software
2. Write names of any two anti virus.MS
3. Write short notes on Disk defragmenter.
4. Write five functions of operating system?
5. What do you mean by compressor utility?
6. Write one's complement of 9.
7. What is cache memory?
8. State Demorgan's law. Verify using truth table
9. Which are called universal gates? Why are they so called?
10. What is tautology and fallacy?

IV. Answer the following questions:

1. Draw the logic gate diagram for the expression ---- (X' + Y' + Z').
(X+Y+Z').(X+Y'+Z')
2. Draw the logic gate diagram for the expression ---- PQRS+P'Q'R'S+P'Q'R'S'
3. Write the turth table for the following expression ---   (X' + Y' + Z').

(X+Y+Z').(X+Y'+Z')

4. Write the turth table for the following expression ---- PQRS+P'Q'R'S+P'Q'R'S'

5. State Distributive law and draw he logic gate diagram for the same.

BIOLOGY

1)Slide preparation on topics provided based on class11 syllabus

2) Solve the NCERT Question from the topics completed.

3)Prepare Question bank from the topics completed (At least 10 questions/topic)

BIOTECHNOLOGY

1. Make a note on all topics given in cellular organelle with diagrams.

2. Briefly explain following topics given below.

  (a) Carbohydrate and Protein.

  (b) Structure and projection of carbohydrates.

  (c) Classification of carbohydrates.

  (d) Bond involved in carbohydrates and protein.

3. Do exercise questions of the topic completed.

ECONOMICS

1. Unemployment is reduced due the measures taken by the government. State its economic value in the context of Production Possibilities Frontier.

2. Large number of technical training institutions have been started by the government. State its economic value in the context of Production Possibilities Frontier.

3. Take the economic value achieved through the spread of education in the context Of production potential.

4. Define Production Possibility Curve (PPC).

5. Why does an economic problem arise?

6. Give the meaning of opportunity cost.

7. Give two reasons for the problem of choice.

8. What does the rightward shift of Production Possibility Curve indicate?

9. What does the problem for whom to produce refer to?

10. Production in an economy is below its potential due to unemployment. Government starts employment generation schemes. Explain its effect using Production Possibility Curve.

11. Draw a Production Possibility Curve. What does a point below this curve indicate? Explain.

12. What is Marginal Rate of Transformation? Explain With the help of an example

13. Explain the central problem of the choice of products to be produced,

14. Explain properties of Production Possibility Curve (PPC).

15. With the help of suitable example, explain the problem of 'for whom to produce'.

PHYSICAL EDUCATION

1) Define physical education and write ten definitions of ten different writers.
2) Write aims and objectives of physical education.
3) Enlist the courses in physical education.
4) What are the careers in physical education? Discuss in brief.
5) Discuss the changing trends in physical education in India.

6) What do you mean by soft skills? Discuss any five soft skills which are required for career in the field of physical education.
7) Write shorts notes on the following.
    a) Teaching career in physical education.
    b) Coaching career in physical education.
    c) Health related careers.
    d) Administration related career.
    e) Performance related careers.
    f) Careers in communication media.
    g) Sports journalism.
8) What is Olympic movement? Write in detail.
9) Write about the Olympic flame.
10) Write short note on Olympic flag.
11) Briefly explain about international Olympic committee.
12) Explain the origin of ancient Olympic games.
13) Explain the origin of modern Olympic games.
14) Elucidate about the development of values through Olympic movement.
15) Enlist the sports award and explain about any one award in details.
16) Discuss about the organizational set up of CBSE sports.

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