NAND KISHORE VIDYA BHAVAN

(A Senior Secondary School, Based on CBSE, Delhi)
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HOLIDAY HOMEWORK (2023-24)
CLASS-9

HINDI

प्रश्न 1 - 25 पेज हिंदी सुलेख लिखिए।

प्रश्न 2- निम्नलिखित गद्यांश को पढ़कर नीचे दिए गए प्रश्नों के उत्तर दीजिए:

जानवरों में गधा सबसे ज्यादा बुद्धिहीन समझा जाता है। हम जब किसी आदमी को परले दरजे का बेवकूफ़ कहना चाहते हैं, तो उसे गधा कहते हैं। गधा सचमुच बेवकूफ़ है, या उसके । सीधेपन, उसकी निरापद सहिष्णुता ने उसे यह पदवी दे दी है, इसका निश्चय नहीं किया जा सकता। गायें सींग मारती हैं, ब्याई हुई गाय तो । अनायास ही सिंहनी का रूप धारण कर लेती है। कुत्ता भी बहुत गरीब जानवर है, लेकिन कभी-कभी उसे भी । क्रोध आ ही जाता है, किंतु गधे को कभी क्रोध करते नहीं सुना, न देखा। जितना चाहो गरीब को मारो, चाहे जैसी खराब, सड़ी हुई घास सामने डाल दो, उसके चेहरे पर कभी असंतोष की । छाया भी न दिखाई देगी। वैशाख में चाहे एकाध बार कुलेल कर लेता हो; पर हमने तो उसे कभी खुश होते नहीं देखा। उसके । चेहरे पर एक विषाद स्थायी रूप से छाया रहता है। सुख-दुख, हानि-लाभ, किसी भी दशा में उसे बदलते नहीं देखा। ऋषियों-मुनियों के जितने गुण हैं वे सभी उसमें पराकाष्ठा को पहुँच गए हैं, पर आदमी उसे बेवकूफ़ कहता है।

प्रश्न

(क) ऋषि-मुनियों तथा गधे में क्या समानता देखी गई है?

(ख) किसी आदमी को गधा कहने का क्या अर्थ है?

(ग) गधे को बुद्धिहीन क्यों माना जाता है?

प्रश्न- 3- विद्यालय में प्रवेश लेने हेतु भैया से पैसा मांगने के लिए एक पत्र लिखिये।

प्रश्न 4- अलंकार किसे कहते हैं। उनके प्रकार भी लिखिए।

प्रश्न 5 कलम का सिपाही किसे कहते है। उनका जीवन परिचय लिखिए।

ENGLISH

English literature

1- Prepare chapter 1 & 2 from Beehive .

2- Prepare chapter 1 & 2 from moments.

English Language

1- Prepare two formal and two informal letter from your Grammer Book.

2 - Write down all the rules of tenses on chart paper with suitable examples. **(Roll no. 1 to 8)**

3 - Write down all the rules of Direct and Indirect on chart paper with suitable examples. **(Roll no. 9 to last)**

MATHS

(1) Write each of the following in decimal form and say what kind of decimal expansion each has.

(a) $\dfrac{5}{8}$ (b) $\dfrac{7}{25}$ (c) $\dfrac{11}{24}$ (d) $2\dfrac{5}{12}$ (e) $\dfrac{5}{13}$ (f) $\dfrac{231}{625}$

(g) $\dfrac{261}{400}$

(2) Express each of the following decimals in the form $\dfrac{p}{q}$ where p, q are integers and q # 0.

(a) $0.00\overline{32}$ (b) $0.3\overline{178}$ (c) $0.40\overline{7}$ (d) $1.3\overline{23}$ (e) $2.\overline{93}$

(3) Express $2.\overline{36} + 0.\overline{23}$ as a fraction in simplest form.

(4) Let x be a rational number and y be an irrational number. is x + y necessarily an irrational number? Give an example in support of your answer.

(5) How many irrational number lie between $\sqrt{2}$ and $\sqrt{3}$? Find any three irrational number lying between $\sqrt{2}$ and $\sqrt{3}$.

(6) Simplify :- $\dfrac{\sqrt{72}}{5\sqrt{72} + 3\sqrt{288} - 2\sqrt{648}}$

(7) Simplify :- $(3 + \sqrt{3})(2 + \sqrt{2})^2$

(8) Simplify :- (a) $3\sqrt{45} - \sqrt{125} + \sqrt{200} - \sqrt{50}$

(b) $\sqrt{72} + \sqrt{800} - \sqrt{18}$

(9) Represent $\sqrt{5}$ on the number line.

(10) Represent $\sqrt{8}$ on the number line.

(11) Represent $\sqrt{10.5}$ on the number line.

(12) Represent $(1 + \sqrt{9.5})$ on the number line.

(13) Visualize the representation of $4.\overline{67}$ on the number line up to 4 decimal places.

(14) Simplify :- by rationalizing the denominator : $\dfrac{6 - 4\sqrt{3}}{6 + 4\sqrt{3}}$

(15) find the values of a and b if $\dfrac{3 + \sqrt{2}}{3 - \sqrt{2}} = a + b\sqrt{2}$

(16) Rationalize the denominator of each of the following.

(1) $\dfrac{1}{\sqrt{7} + \sqrt{6} - \sqrt{13}}$ (2) $\dfrac{3}{\sqrt{3} + \sqrt{5} - \sqrt{2}}$

17. If X $= \dfrac{\sqrt{2} + 1}{\sqrt{2} - 1}$ and Y $= \dfrac{\sqrt{2} - 1}{\sqrt{2} + 1}$ find the value of $x^2 + y^2 + xy$.

(18) $X = \dfrac{1}{3-\sqrt{8}}$,   find the value of $x^3 + 2x^2 - 7x + 5$.

(19)   If a = 3-2 $\sqrt{2}$, find the value of $a^2 - \dfrac{1}{a^2}$

(20)   If X= $\dfrac{5-\sqrt{3}}{5+\sqrt{3}}$ and Y= $\dfrac{5+\sqrt{3}}{5-\sqrt{3}}$, shows that x-y $= -\dfrac{10\sqrt{3}}{11}$.

(21)   Evaluate –

(1) $(32)^{1/5} + (-7)^0 + (64)^{1\backslash 2}$ (6) $\sqrt[4]{81x^8 y^4 z^{16}} \div \sqrt[3]{27x^3 y^6 z^9}$

(2) $(0.00032)^{-2\backslash 5}$ (7) $\sqrt[5]{x^4 \sqrt[4]{x^3 \sqrt[2]{x^2 \sqrt{x}}}}$

(3) $\left(\dfrac{64}{125}\right)^{-\frac{2}{3}}$ (8) $\left(\sqrt{x}\right)^{-\frac{2}{3}} \sqrt{y^4} \div \sqrt{xy^{-\frac{1}{2}} \sqrt{x^{-2} y^3}}$

(4) $\sqrt[3]{(343)^{-2}}$ (9) $\sqrt[5]{(32)^{-3}}$

(10) $(\ 1^3 + 2^3 + 3^3\ )^{1/2}$

(22)   simplify : $\left(\dfrac{81}{16}\right)^{-\frac{3}{4}} \times \left[\left(\dfrac{25}{9}\right)^{-\frac{3}{2}} \div \left(\dfrac{5}{2}\right)^{-3}\right]$

(23)   prove that $\dfrac{2^{30} + 2^{29} + 2^{28}}{2^{31} + 2^{30} - 2^{29}} = \dfrac{7}{10}$

(24)   prove that   (1) $\dfrac{a^{-1}}{a^{-1} + b^{-1}} + \dfrac{a^{-1}}{a^{-1} b^{-1}} = \dfrac{2b^2}{b^2 - a^2}$

(2) $\dfrac{1}{1+x^{a-b}} + \dfrac{1}{1+x^{b-a}} = 1$

(25)   simplify : $\left(\dfrac{x^l}{x^m}\right)^{\frac{l}{lm}} \times \left(\dfrac{x^m}{x^n}\right)^{\frac{1}{mn}} \times \left(\dfrac{x^n}{x^l}\right)^{\frac{1}{lm}}$

(26)   (i) If $x^{\frac{1}{12}} = 49^{\frac{1}{24}}$, find the value of x.

(ii) If $(125)^x = \dfrac{25}{5^x}$, find x

(27)   write the following in the descending order of magnitude $\sqrt[3]{2}$, $\sqrt{3}$ $\sqrt[6]{5}$

(28)   If P(x) =x $^{3.}$ + x^3 -9x-9, find P(0),P(3), P(-3) and P(-1).
        What do you conclude about the zeros of P(x) , is 0(zero) a zero of P(/X) ?

(29)   verify that

(1) $\dfrac{2}{5}$ IS a zero of the Polynomial, f (x) =2-5x

(2) $-\dfrac{1}{2}$ is a zero of polynomial, g(y) = 2y+1..

(30) If 2 and 0 are the zero of the polynomial f(x)= $2x^3 -5x^2$ ax +b
then find the value of a and b

(31) find the reminder when the polynomial P(x) =x^4 +$2x^3$ -$3x^2$ +x-1 is
divided by g(x)=x-2

(32) The polynomials $(2x^3 + x^2 - ax + 2)$ and $(2x^3 - 3x^2 - 3x + a)$
when dividefd by $(x - 2)$ leave the same remainder. Find the value of a.

(33) The polynomial $P(x) = x^4 - 2x^3 + 3x^2 - ax + b$ when divided by (x-1) and (x+1)
leave the reminder 5 and 19 respectively . find the values of a and b. hence find
remainder when P (x) is divided by (x-2).

(34) If P(x) = $2x^3$ -$11x^2$ - 4x +5 and g(x) = 2x +1 , show that g(x) is not a factor of P(x).

(35) If $(ax^3 + bx^2 - 5x + 2)$ has (x+2) as a factor and leaves a reminder 12
When divided by (x-2), find the value of a and b.

(36) If both (x-2) and (x -$\dfrac{1}{2}$) are factor of px^2 +5x+r, prove that p = r.

(37) Factorization of polynomial-

(1) $(2x-3)^2 - 8x + 12$

(2) x^2 + $\dfrac{1}{x^2}$ - 2 - 3x + $\dfrac{3}{x}$

(3) x^2 - 1 – 2 a - a^2

(4) $(x^4 +4)$

(5) $(x^2 + \dfrac{4}{x^2})$

(6) $x^4 + x^2 y^2 + y^4$

(7) $x^2 + 5\sqrt{3}x + 12$

(8) $(p+q)^2$ - 20 (p +q) – 125

(9) $\sqrt{2}x^2$ +9x + 4 $\sqrt{2}$

(10) 4 $\sqrt{3}$ x^2 +5x - 2 $\sqrt{3}$

(11) 42-r -r^2

(12) $(3a -5b-c)^2$

(13) $(\dfrac{1}{2}a - \dfrac{1}{2}b + 2)^2)$

(14) $16x^2$ + $4y^2$ +$9Z^2$ -16xy -12yz +24xz

(15) $25x^2 + 4y^2 + 9z^2 - 20xy - 12yz + 30xz$

(16) Evaluate

(a) $(995)^2$ (b) $(107)^2$ (c) $(99)^2$

(17) Factories

(i) $8a^3 + b^3 + 12a^2 b + 6ab^2$

(ii) $64a^3 - 27b^3 - 144a^2 b + 108 ab^2$

(18) Expanded –

(i) $-\left(3a + \dfrac{1}{4b}\right)^3$

(ii) $\left(\dfrac{4}{5}a - 2\right)^3$

(19) Evaluate-

(i) $(103)^3$ (ii) $(99)^3$

(20) Find the following product-

(i) $(x+2y)\left(\dfrac{x^2}{4} - xy + 4y^2\right)$

(ii) $(x^2 - 1)(x^4 + x^2 + 1)$

(21) Factorise-

$(x+1)^3 + (x-1)^3$

(22)   prove that –

$$\dfrac{0.85 \times 0.85 \times 0.85 + 0.15 \times 0.15 \times 0.15}{0.85 \times 0.85 - 0.85 \times 0.15 + 0.15 \times 0.15} = 1$$

SCIENCE

1. (a) Identify the kind of motion in the following cases:

(i)   A car moving with constant speed turning around a curve.

(ii) An electron orbitting around nucleus.

(b) An artificial satellite is moving in a circular orbit of radius 36,000 km. Calculate its speed if it takes 24 hours to revolve around the earth.

2. (a) Define average speed.

(b) A bus travels a distance of 120 km with a speed of 40 km/h and returns with a speed of 30 km/h. Calculate the average speed for the entire journey.

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3. Define uniform and non-uniform motion. Write one example for each.

4. What does the odometer of an automobile measure? Which of the following is moving faster? Justify your answer.

    (i) A scooter moving with a speed of 300 m per I minute.

    (ii) A car moving with a speed of 36 km per hour.

5. A car travels from stop A to stop B with a speed of 30 km/h and then returns back to A with a speed of 50 km/h. Find

    (i) displacement of the car.

    (ii) distance travelled by the car.

    (iii) average speed of the car.

6. Velocity-time graph for the motion of an object in a straight path is a straight line parallel to the time axis.

    (a) Identify the nature of motion of the body.

    (b) Find the acceleration of the body.

    (c) Draw the shape of distance-time graph for this type of motion.

7. Draw the shape of the distance-time graph for uniform and non-uniform motion of object. A bus of starting from rest moves with uniform acceleration of 0.1 ms^{-2} for 2 minutes. Find

    (a) the speed acquired.

    (b) the distance travelled.

8. (a) Define uniform acceleration. What is the acceleration of a body moving with uniform velocity?

    (b) A particle moves over three quarters of a circle of radius r. What is the magnitude of its displacement?

9. A bus accelerates uniformly from 54 km/h to 72 km/h in 10 seconds Calculate

    (i) acceleration in m/s^2

    (ii) distance covered by the bus in metres during this interval.

10. A car moves with a speed of 30 km/h^{-1} for half an hour, 25 km/h^{-1} for one hour and 40 km/h^{-1} for two hours. Calculate the average speed of the car.

11. Derive the equation for velocity-time relation ($v = u + at$) by graphical method.

12. A car is travelling at 20 km/h, it speeds upto 60 km/h in 6 seconds. What is its acceleration?

13. A car accelerates from 6 ms^{-1} 16 ms^{-1} in 10 sec. Calculate

    (a) the acceleration and

    (b) the distance covered by the car in that time.

14. A circular track has a circumference of 3140 m with AB as one of its diameter. A scooterist moves from A to B alone the circular path with a uniform speed of 10 m/s. Find

    (a) distance covered by the scooterist,

    (b) displacement of the scooterist, and

    (c) time taken by the scooterist in reaching from A to B.

15. (a) Differentiate between uniform linear and uniform circular motion.

    (b) Write any four examples of uniform circular motion.

    (c) Is uniform circular motion accelerated motion?

16. (a) Differentiate between speed and velocity.

    (b) When is a body said to have uniform velocity?

    (c) How can we describe the position of an object?

    Illustrate with suitable example.

17. The graph given alongside shows how the speed of a car changes with time.

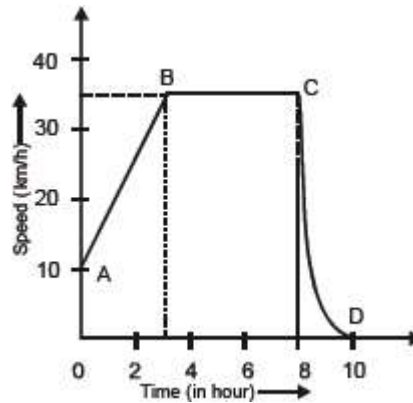   (i) What is the initial speed of the car?

(ii) What is the maximum speed attained by the car?
(iii) Which part of the graph shows zero acceleration?
(iv) Which part of the graph shows varying retardation?
(v) Find the distance travelled in first 8 hours.

18. Study the velocity-time graph and calculate.
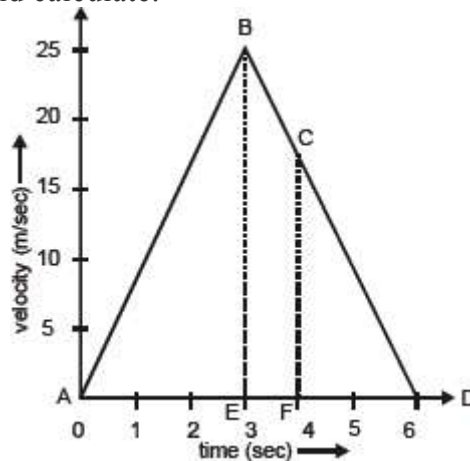
(a) The acceleration from A to B
(b) The acceleration from B to C
(c) The distance covered in the region ABE
(d) The average velocity from C to D
(e) The distance covered in the region BCFE

19. The following table gives the data about motion of a car.

Time (h)	11.00	11.30	12.00	12.30	1.00
Distance (km)	0	30	30	65	100

Plot the graph.
(i) Find the speed of the car between 12.00 hours and 12.30 hours.
(ii) What is the average speed of the car?
(iii) Is the car's motion an example of uniform motion? Justify.

20. (a) Derive the equation of motion $v = u + at$, using graphical method.
(b) A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming the acceleration is uniform, find

(i) the acceleration.

(ii) the distance travelled by the train for attaining this velocity.

21. Which of the following is heaviest metal?

   Pb, As, Al, Ni

22. Which of the following has highest melting point?

   Ni, Fe, Pt, W.

23. Which property of cotton makes it suitable for use as clothing in summer?

24. Name the synthetic fibre which resembles wool in its properties.

25. Which material is used for making CDs?

26. Why is rayon called artificial silk?

27. What is used for coating non-stick kitchen wares?

28. Which gas is used as referigerant in fridge and in air conditioner?

29. Why do gold, silver and platinum occur in free state?

30. Why do we see water droplets collected on the outer surface of a glass container, containing ice?

31. Explain why solids have fixed shape but liquids and gases do not have fixed shape.

32. Why is it advisable to use pressure cooker at higher altitudes?

33. What are fluids?

34. Why is water liquid at room temperature?

35. Cotton is solid but it floats on water. Why?

36. Why are solids generally denser than liquids and gases?

37. Name the factors that affect evaporation.

38. How is the high compressibility property of gas useful to us?

39. With the help of an example, explain how diffusion of gases in water is essential?

40. On a hot sunny day, why do people sprinkle water on the roof or open ground?

41. Why to people perspire a lot on a hot humid day?

42. A balloon when kept in sun, bursts after some time. Why?

43. Pressure and temperature determine the state of a substance. Explain this in detail.

44. Explain giving examples the various factors on which rate of evaporation depends.

Biology project ---
Make a project of atleast 15 pages on the topic " Improvement in Food Resources "

SST

Make a project file on any one of the following topics-

1. Pocket guide on First Aid.

2. Communication Facilities for Disaster Management.

COMPUTER

Make a minimum 15 pages project on ICT (Information, communication and Technology) (with photos or diagrams.)

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