SHREE VASISHTHA VIDHYALAYA ENGLISH MEDIUM (CBSE)

Class-XI (Science)

Celebrate Responsibly — The Vasishtha Way

Dear Students of Grades XI & XII,

As the festive season approaches, Shree Vasishtha Vidhyalaya extends warm wishes for a joyful, safe, and meaningful Diwali. May this festival of lights bring peace, happiness, and renewed energy to you and your families.

As senior students and role models of the school, you are encouraged to celebrate Diwali in a manner that reflects the Vasishthian values of mindfulness, responsibility, and continuous learning. During the Diwali break, we invite you to engage in the following purposeful activities:

Celebrate an Eco-friendly Diwali:

Opt for traditional diyas and natural decorations. Minimize or avoid firecrackers and plastic waste, demonstrating care for the environment.

Read and Reflect:

Select at least one book of your choice — fiction, biography, or an inspiring non-fiction title. Reading enhances critical thinking, creativity, and self-awareness.

Access our Digital Library – Vasishtha Learning Space:

https://vasishthalearningspace.my.canva.site/vasishtha-digital-library

Learn a New Skill:

Explore a skill that interests you — communication, creative writing, coding, photography, cooking, or basic financial literacy. Learning together or individually strengthens knowledge and life skills.

Recommended platforms:

SWAYAM: https://swayam.gov.in

AI for All (Ministry of Education): https://ai-for-all.in/

Adopt a Healthy Habit:

Incorporate small yet consistent routines — morning exercise, digital detox, mindful eating, or journaling. These habits foster discipline, well-being, and resilience.

Let this Diwali illuminate not only your surroundings but also inspire self-growth, learning, and responsibility. Wishing all our senior students a safe, eco-conscious, and enriching festive season.

With warm regards,
Shree Vasishtha Vidhyalaya

Happy Learning !
Happy Diwali !

Assignment (2025 26)
STD-XI Science

Please Note:

1. **Students are requested to complete the holiday homework in their school notebooks.**
2. **The school will reopen on Thursday, 6th November 2025. for all students (Classes XI-XII), as mentioned in the almanac.**

ENGLISH

1. Write an application to the principal of your school requesting permission to organize a cultural program for the upcoming festival in your school.
2. Imagine your school hosted a science exhibition. Write a report for your school magazine describing the event, its highlights, and the students' participation.
3. Write an article for your school newsletter on the topic: "The Importance of Reading Books in the Digital Age."
4. Prepare a speech to be delivered in your school assembly on: "Role of Youth in Environmental Protection."
5. Describe the personality of the grandmother as seen by the narrator. How does she influence the narrator's perception of life?
6. How do the crew members demonstrate courage and teamwork during the storm at sea?
7. What challenges do historians face in discovering and interpreting ancient artifacts? Give examples from the text
8. How does the narrator's visit to Mrs. Dorling's house change her perspective about her past?
9. Describe Aram's character. How does his honesty and innocence reflect in the story?
10. Your school is organizing a "Talent Hunt Competition" for all students of Classes 11 and 12. As the Head Boy/Head Girl, write a notice to be put up on the school notice board informing students about the event. Include the date, time, venue, and how students can participate.

PHYSICS

Q 1. Sand is being dropped on a conveyor belt at the rate of M kg/s. The force necessary to keep the belt moving with a constant velocity v m/s will be

(A). Mv   (B). 2 Mv   (C). Mv/2   (D). zero

Q 2. A block is kept on a frictionless inclined plane with angle of inclination x. The plane is given an acceleration a to keep the block at rest. Then a is equal to

(A). g   (B). g tan x   (C). g/ tan x   (D). g/sin x

Q 3. A bullet of mass 0.05 kg moving with a speed of 80 m/s enters a wooden block and is stopped after a distance of 0.40 m. the average resistive force exerted by the block on the bullet is

(A). 300 N   (B). 20 N   (C). 400N   (D). 40 N

Q 4. An object of mass 5 kg is attached to the hook of a spring balance and the balance is suspended vertically from the roof of a lift. The reading on the spring balance, when the lift is going up with an acceleration of 0.25 ms^{-2} ($g = 10 \text{ m/s}^2$)

(A). 51.25 N   (B). 48.75 N   (C). 52.75 N   (D). 47.25N

Q.5 Maximum value of static friction is called

(a) Limiting friction   (b) Rolling friction   (c) Normal reaction   (d) Coefficient of friction

Q.6 Unit of energy is

(a) kwh   (b) joule   (c) electron volt   (d) All of these

Q.7 What a body moves with constant along a circle The work done by the force is

(a) No work is done   (b) no acceleration is produced in it

(c) Its velocity remains constant   (d) None of the above

Q.8 If two particles are brought near one another, the potential energy of the system will

(a) increase   (b) decrease   (c) remains the same   (d) equal to the K.E

Q.9 When two spheres of equal masses undergo perfect inelastic collision with one of them at rest, after collision they will move

(a) opposite to one another   (b) in the same direction   (c) together   (d) at right angle to each other

Q. 10 According to work-energy theorem, the work done by the net force on a moving particle is equal to the change in its

(a) kinetic energy   (b) potential energy   (c) linear momentum   (d) angular momentum

Q.11 The time rate of change of angular momentum of a particle is equal to

(a) force   (b) acceleration   (c) torque   (d) linear momentum

Q.12 The wide handle of screw is based upon

(a) Newton's second law of motion   (b) law of conservation of linear momentum

(c) turning effect of force   (d) None of these

Q.13 Which of the following is an expression for power

(a) $P = \tau\omega$ (b) $P = I\alpha$ (c) $P = I\omega$ (d) $P = \tau\alpha$

Q.14 According to the principle of conservation of angular momentum, if moment of inertia of a rotating body decreases, then its angular velocity

(a) decreases   (b) increases   (c) remains constant   (d) becomes zero

Q.15 When a mass is rotating in a plane about a fixed point, its angular momentum is directed along the

(a) radius of orbit   (b) tangent to the orbit

(c) line parallel to plane of rotation   (d) line perpendicular to plane of rotation

Q.16 Derive an expression for the variation of acceleration due to gravity

(i) with altitude above the surface of the Earth   (ii) with depth below the surface of Earth.

Q.17 Show that the acceleration due to gravity at a height h above the surface of the Earth has the same value as that at depth d = 2h below the surface of the earth.

Q.18 Define gravitational potential energy. Derive the expression for the same.

Q.19 Define escape velocity. Derive an expression for the escape velocity of a satellite projected from the surface of the earth.

Q.20 Define orbital velocity of a satellite. Derive an expression for the orbital velocity of a satellite. Also State and explain Kepler's laws of planetary motion.

CHEMISTRY

A. **Investigatory Project:**
1. Estimation of Caffeine in Tea or Coffee.
2. Analysis of Food Adulterants.
3. Natural pH Indicators from Plant Extracts.
4. Rate of Evaporation of Liquids.
5.   Electrochemical Cell Using Fruit Juices.
6. Chloride Content in Milk.
7. Esterification: Making Banana Oil.
8. Soap Foam Capacity.
B. **Exercise questions of Chemical Equilibrium.**

MATHEMATICS

1. Find the slope of the line passing through points (2, 3) and (4, 7).
2. Determine the equation of a line with slope 2 and passing through (1, -3).
3. Find the intercepts on the x-axis and y-axis of the line 3x + 4y = 12.
4. Write the equation of a line parallel to x-axis and passing through (5, -2).

5. Write the equation of a line perpendicular to y = 3x + 7 and passing through (2, -1).
6. Find the angle between lines y = 2x + 3 and y = -½x + 4.
7. If the line 2x + 3y = 5 passes through (a, 4), find the value of *a*.
8. Find the equation of the line passing through (1, 2) and perpendicular to 2x – 3y + 4 = 0.
9. The line passes through (3, 4) and makes an angle of 45° with the x-axis. Find its equation.
10. Find the distance of the point (3, -2) from the line 4x – 3y + 5 = 0.
11. Determine the point of intersection of the lines 3x + 2y = 12 and x – y = 1.
12. Find the equation of a line making equal intercepts on the coordinate axes.
13. The line 2x + ky + 3 = 0 passes through (1, -2). Find *k*.
14. If lines 2x + 3y = 4 and 4x + 6y = k are coincident, find *k*.
15. Find the equation of the bisector of the angle between lines 3x – 4y + 7 = 0 and 3x – 4y – 5 = 0.
16. Write the next three terms of the sequence: 2, 6, 18, 54, …
17. Find the 10th term of an arithmetic progression whose first term is 3 and common difference is 5.
18. The 7th term of an A.P. is 20 and 12th term is 35. Find the A.P.
19. Find the sum of the first 15 terms of the series: 7 + 10 + 13 + …
20. If the nth term of an A.P. is 5n – 2, find the first term and common difference.
21. Find the number of terms in A.P. 7, 13, 19, …, 205.
22. The 5th and 8th terms of a G.P. are 81 and 729. Find the G.P.
23. Find the sum to n terms of a G.P. with a = 2 and r = 3.
24. If the sum of n terms of an A.P. is 3n² + 5n, find its first term and common difference.
25. Find three numbers in A.P. whose sum is 24 and product is 440.
26. The sum of the first three terms of a G.P. is 13 and the product is 64. Find the terms.
27. Find the 9th term of the sequence 1, 4, 9, 16, …
28. The sum of n terms of an A.P. is 2n² + 3n. Find its 10th term.
29. Find the arithmetic mean between 8 and 32.
30. If a, b, c are in G.P., prove that log a, log b, log c are in A.P.

BIOLOGY

Class 11 Biology – Holiday Assignment

Instructions:
1. Choose **any one project topic** from the list given below.
2. The project should be done in a **hardbound file** with proper headings, illustrations, diagrams, and references.
3. Word limit: **800–1000 words** (excluding diagrams).
4. Include **introduction, content, case studies/activities, diagrams, conclusion, and bibliography**.
5. Creativity (charts, models, field work, surveys, photography, handmade diagrams) will carry extra marks.
6. Submission Date: On the **first day after vacation**.

Suggested Project Topics (Choose One)
1. **Medicinal Plants of India** – Their uses and conservation.
2. **Microbes in Human Welfare** – Role in industries, medicine, and environment.
3. **Human Genome Project** – Achievements and applications.
4. **Effects of Air and Water Pollution on Human Health**.
5. **Biodiversity Hotspots of India** – Conservation strategies.
6. **Edible Plant Products** – A study of cereals, pulses, fruits, and vegetables.
7. **Biofertilizers and Biopesticides** – Role in sustainable agriculture.
8. **Adaptations in Desert Plants and Animals**.
9. **Food Adulteration** – Methods of detection and prevention.
10. **Locomotion in Animals** – Comparative study in different groups.

11. **Blood Groups in Humans** – Survey and analysis in your family or community.
12. **Structure and Functions of Human Eye and Ear** – Common disorders.
13. **Stem Cell Technology** – Future prospects in medicine.
14. **Greenhouse Effect and Global Warming** – Impact on life.
15. **Photosynthesis in Higher Plants** – Mechanism and significance.
16. **DNA Fingerprinting** – Principle and applications in forensic science.
17. **Diseases Caused by Microorganisms** – Preventive measures.
18. **Waste Management** – Reduce, Reuse, Recycle in your locality.
19. **Vermicomposting** – A sustainable method of waste disposal.
20. **Biotechnology in Agriculture** – GM crops and ethical issues.

INFORMATICS PRACTICES

Instructions

1)To be done in IP NoteBook.

2)Write a program to create a dictionary by taking appropriate keys and values of different places that you visit during Diwali vacation. For example

{'Place-West Bengal':['Sweet dish-Misti doi', 'Language-Bengali', 'Festival-Durga Puja'}

3)Write commands to display the contents of all the dictionary in tabular format

4)Write commands to add any new place along with other values accepted from user to the above dictionary

5)Write commands to modify some contents from the already created dictionary

(Note-You can also create a menu-based application to solve above tasks.)

PHYSICAL EDUCATION

Instructions

1.Read all questions carefully before answering.

2.Choose the most appropriate answer from the four options (A, B, C, D).

3.Write only the question number and the correct option (e.g., 1 – B) in your notebook or answer sheet.

4.Revise your answers before submission.

5.Submit the completed assignment by the given deadline.

6.This assignment covers Units 1 to 5 of Physical Education syllabus.

Unit 1 – Changing Trends & Career in Physical Education

1. The "integration of physical education with education" emphasizes:
   A. Physical fitness over academics
   B. Balanced development of mind and body
   C. Separation of cognitive and physical learning
   D. Focus only on sports achievements

2. One major impact of technology on sports performance analysis is:
   A. Reduced human judgment errors
   B. More bias in decision-making
   C. Elimination of player effort
   D. Decrease in performance standards

3. Khelo India emphasizes "Identification of talent at grassroots." This represents which educational objective?
   A. Cognitive   B. Psychomotor   C. Affective   D. Social

4. A PE teacher encouraging teamwork, respect, and empathy is focusing on which domain?
   A. Psychomotor   B. Affective   C. Cognitive   D. Technical

5. In integrated physical education, the main emphasis is on:
   A. Elite training
   B. Holistic growth of all learners
   C. Skill-specific drills
   D. Specialized coaching

6. Which factor best explains "changing trends in sports participation"?
   A. Decrease in awareness
   B. Increase in sedentary jobs
   C. Technological and social modernization
   D. Decline in urban facilities

7. Sports analytics and wearable trackers mostly help in:
   A. Increasing coach workload
   B. Monitoring athlete health and load
   C. Avoiding competition
   D. Replacing training

8. The professional who studies the psychological aspects of performance is called:
   A. Sports pedagogue   B. Sports psychologist   C. Sports sociologist   D. Physical therapist

9. One emerging career in Physical Education due to globalization is:
    A. Sports journalism   B. Mechanical engineering   C. Chartered accountancy   D. Architecture
10. Which trend has contributed most to increased women participation in sports?
    A. Technological gadgets   B. Social awareness and equality movements
    C. Lack of competition   D. Reduced sports funding

Unit 2 – Olympic Value Education

1. The Olympic values are rooted in:
    A. Competition and dominance   B. Friendship, respect, excellence
    C. National pride   D. Media promotion
2. The "Joy of Effort" principle focuses on:
    A. Success in every attempt   B. Enjoyment of participation and striving
    C. Winning medals   D. Training intensity
3. When a coach teaches players to shake hands regardless of result, it promotes:
    A. Excellence   B. Friendship   C. Respect   D. Joy of effort
4. "Citius, Altius, Fortius — Communiter" was modified in:
    A. 1992   B. 2008   C. 2021   D. 2016
5. A student organizing a fair-play competition learns which Olympic value most?
    A. Friendship   B. Equality   C. Respect   D. Unity
6. If two rival athletes help each other finish a race, it shows:
    A. Commercialism   B. Political neutrality   C. Olympic spirit   D. Record obsession
7. Inclusion of Paralympic Games emphasizes:
    A. Political equality   B. Inclusivity and respect for diversity
    C. Separate sports   D. Medical advancement
8. The Olympic Charter primarily aims to:
    A. Govern world politics   B. Guide sports ethics and fair play
    C. Regulate sponsorships   D. Promote nationalism
9. Who is known as the father of the Modern Olympic Games?
    A. Dr. Norman Borlaug   B. Pierre de Coubertin
    C. Juan Antonio Samaranch   D. Avery Brundage
10.   The five Olympic rings symbolize:
    A. Five sports   B. Five continents   C. Five years   D. Five nations

Unit 3 – Yoga

1. The practice of Pranayama improves:
    A. Muscular strength   B. Cardiovascular endurance
    C. Respiratory efficiency and mental calmness   D. Only body flexibility
2. Which limb of Ashtanga Yoga focuses on self-discipline and observances?
    A. Yama   B. Niyama   C. Dharana   D. Samadhi
3. Performing Kapalbhati daily benefits the:
    A. Digestive and respiratory systems   B. Circulatory system only
    C. Skeletal system   D. Endocrine system
4. The eight limbs of yoga progress from:
    A. Physical → Mental → Spiritual   B. Spiritual → Physical → Mental
    C. Emotional → Social → Technical   D. None of these

5. Which Asana helps relieve hypertension?
    A. Savasana   B. Chakrasana   C. Ustrasana   D. Dhanurasana
6. Yogic Kriyas help in:
    A. Strength building   B. Internal purification   C. Calorie burning   D. Improving balance
7. Regular yoga practice affects the nervous system by:
    A. Stimulating the sympathetic system   B. Balancing sympathetic and parasympathetic activity
    C. Over-activating parasympathetic system   D. Blocking nerve signals
8. Meditation primarily improves:
    A. Agility and speed   B. Attention span and self-awareness   C. Endurance   D. Power
9. The word "Yoga" is derived from the Sanskrit root "Yuj," meaning:
    A. Freedom   B. Union or join   C. Peace   D. Breath

10. Which type of Pranayama involves alternate nostril breathing?
   A. Bhastrika   B. Nadi Shodhana   C. Kapalbhati   D. Ujjayi

Unit 4 – Physical Education & Sports for CWSN

1. Adapted physical education differs from general PE because it:
   A. Involves only theory   B. Is individualized based on needs
   C. Eliminates team activities   D. Ignores interaction
2. The least restrictive environment principle means:
   A. Teaching in separate settings   B. Inclusion with necessary support
   C. Exclusion to maintain performance   D. No adjustments made
3. The main goal of inclusive education is:
   A. Equal participation for all   B. Faster curriculum completion
   C. Specialized segregation   D. Uniform ability
4. A student with mild cerebral palsy benefits most from:
   A. Yoga and stretching   B. High-speed sprinting   C. Competitive football   D. Wrestling
5. Which law protects rights of persons with disabilities?
   A. RPWD Act, 2016   B. RTI Act, 2005   C. RTE Act, 2009   D. Sports Policy Act, 2018
6. A PE teacher modifying equipment for differently-abled students is practicing:
   A. Differentiated instruction   B. Coaching bias   C. Sports exclusion   D. Traditional pedagogy
7. In adaptive PE, assessment focuses more on:
   A. Comparison with others   B. Individual progress   C. Team ranking   D. Record-breaking
8. Disability etiquette requires:
   A. Offering unsolicited help   B. Treating respectfully and asking before helping
   C. Avoiding communication   D. Talking only through interpreters
9. Which disability is associated with hearing loss?
   A. Visual impairment   B. Locomotor disability   C. Deafness   D. Autism
10. "Inclusive education" ensures:
    A. Equal learning opportunities for all   B. Only sports inclusion
    C. Segregation by ability   D. Special school-only learning

Unit 5 – Physical Fitness, Health & Wellness

1. Physical fitness is best defined as:
   A. Ability to perform daily tasks efficiently without fatigue   B. Playing sports only
   C. Having muscular shape   D. Doing intense workouts
2. Which component of fitness is most affected by inactivity?
   A. Flexibility   B. Strength   C. Cardiovascular endurance   D. Speed
3. Wellness is dynamic because:
   A. It changes with environment and lifestyle   B. It is fixed for all
   C. It depends only on heredity   D. It has no mental part
4. An individual who exercises but eats poorly lacks:
   A. Physical fitness   B. Wellness balance   C. Muscular strength   D. Motivation
5. The wellness dimension focusing on managing emotions is:
   A. Social   B. Emotional   C. Physical   D. Environmental
6. "Health is a state of complete physical, mental, and social well-being" — given by:
   A. WHO   B. IOC   C. CBSE   D. UNESCO
7. Overtraining in sports leads to:
   A. Improved performance   B. Decreased immunity and fatigue
   C. Rapid recovery   D. Motivation
8. The balance between calories consumed and burned determines:
   A. Flexibility   B. Body composition   C. Agility   D. Coordination
9. Which of the following is a *skill-related* component of fitness?
   A. Balance   B. Strength   C. Flexibility   D. Endurance
10. The FITT principle helps to:
    A. Plan effective exercise routines   B. Increase fatigue
    C. Avoid nutrition   D. Reduce motivation

ARTIFICIAL INTELLIGENCE

Theme: AI for a Smarter & Greener Diwali

Instructions:

Choose any 2 topics below and write a short research note (150–200 words each).

Include:

◈ What it is   ◈ How AI is used   ◈ Benefits   ◈ Real-life examples

Topics (Choose Any 2):

- AI to reduce air & noise pollution during Diwali
- Smart lighting systems using AI
- AI in waste segregation & recycling
- AI in online festive shopping (recommendations, chatbots)
- AI in fire safety & smart surveillance

Also Answer (2–3 lines each):

Q1 How can AI help make festivals eco-friendly?

Q2 What is one risk of using AI in daily life?sssss

NOTE:

❖ Students need to complete the subject specific assignments as per the instructed norms.

❖ **Submission date for all assignments is 12th November, 2025, Wednesday.**

❖ These assignments are a part of the Internal Assessments and will be marked for the same. It is mandatory for the students to complete the assignments and submit it to the concerned teachers.

❖ Students are requested to clarify any doubts about the assignments during regular classes.

May the auspicious glow of Diwali Illuminate your Life with joy, prosperity, good health and hosting success.

Happy Diwali 2025