DELHI PUBLIC SCHOOL VISAKHAPATNAM
ASSIGNMENT
Half Yearly Examination Revision 2025-26

Class: XII **Date of Submission: on or before 06.09.2025**

SUBJECT: ENGLISH

1.Read the following carefully.

A recent study examined the impact of social media on the mental health of teenagers. The study, which involved 1,500 adolescents aged 13 to 18, explored the relationship between the amount of time spent on social media platforms and feelings of anxiety, depression, and loneliness. Researchers aimed to identify trends in digital media usage, the psychological factors at play, and their implications for parents and educators. Participants were asked to complete a series of questionnaires and mood journals.

The study covered teenagers from various urban and suburban schools, representing diverse socioeconomic backgrounds. Researchers ensured a balanced representation of gender and age groups to make the findings broadly applicable. Data collection involved both digital surveys and small focus group discussions, providing a qualitative layer to the quantitative data. The data was displayed as a bar graph given below.

The study found a strong correlation between high social media usage (more than 4 hours daily) and increased feelings of social anxiety. Participants reported comparing themselves to others, which often led to feelings of inadequacy. However, for a smaller group of teenagers, social media was a vital tool for connecting with friends and finding a community, especially for those with niche interests. This group reported a sense of belonging and less loneliness.

The survey also highlighted several challenges. Participants indicated that cyberbullying and the constant pressure to maintain an online persona were significant stressors. Geographic variations were noted; suburban students, who often had fewer in-person social outlets, reported higher reliance on social media for communication, leading to both positive and negative mental health outcomes.

The findings provide a foundation for further research into how different platforms, content types, and parental guidance can shape the mental health of teenagers. Future studies could explore the long-term effects of digital-first socialisation, the role of media literacy in mitigating negative impacts, and the effectiveness of school-based interventions. This could help parents and schools develop tailored strategies to promote healthy digital habits and provide support to vulnerable adolescents. Moreover, policies encouraging digital well-being education may bridge the gaps identified in this survey, ensuring more informed social media usage among youth.

Answer the following questions, based on the given passage.

I. What was the main purpose of the study conducted among 1,500 adolescents?

A. To measure the popularity of different social media platforms

B. To explore the relationship between social media and mental health

C. To identify the most common types of cyberbullying

D. To assess the academic performance of teenagers with high screen time

II. Fill in the blank with the correct option from those given in brackets. The study ensured a balanced representation of gender and age groups to make the findings _____ (conclusive / balanced / representative).

III. Fill in the blank with reference to the given bar graph chart. The usage category for which parents primarily need to provide more guidance is ____.

IV. Based on the bar graph, which of the following statements best reflects the correct trend in the relationship between social media and mental health?

A. High social media usage correlates with a higher percentage of positive mood.

B. Teenagers with low social media usage show the highest levels of anxiety.

C. The percentage of teenagers reporting anxiety and depression increases with higher social media usage.

D. Teenagers with moderate social media usage have better mental health outcomes than those with low usage.

V. Sarah, who lives in a suburban area, feels socially isolated and relies heavily on social media to connect with her peers. Why might she face both positive and negative outcomes from this reliance? (Ref: Paragraphs 3 & 4)
VI. When the researcher says, 'media literacy,' what does s/he mean by this?
A. The ability to read and write about various media platforms
B. The skill to critically analyze and evaluate information from media
C. The knowledge of how to create engaging content for social media
D. The understanding of the historical evolution of different media
VII. How might school-based interventions and policies encouraging digital well-being help bridge the gaps identified in this survey? (Ref: Paragraph 5)
VIII. Select the option that is NOT addressed in this study.
A. The methodology used for data collection
B. The long-term effects of social media on teenagers
C. The role of different platforms on mental health
D. The purpose of the survey
E. The challenges faced by respondents

2. Attempt in 120-150 words. (5 marks)

A. You are Anil Verma, residing at 12/B, Civil Lines, Jaipur. Write a letter to the editor of a local daily, The Daily Times, highlighting the increasing problem of e-waste and the need for proper disposal and recycling. Emphasise the environmental and health hazards associated with improper e-waste management. Draft the letter using your own ideas as well as the cues given.

- Growing use of electronic gadgets
- Dangers of toxic materials in landfills
- Absence of a proper collection and recycling system
- Need for public awareness and government initiatives
- Promoting a culture of responsible consumption

3. You are Preeti Singh from 42, Vasant Kunj, Delhi. You have come across the following advertisement in The Herald for the post of a Senior Content Writer at a digital marketing agency. Write a letter expressing your interest in the position. Include your bio-data along with the application.

4**.** Attempt in 120-150 words. (5 marks)

The rise of fast-food culture has led to a significant increase in health issues among young people. The convenience and appeal of junk food often overshadow its negative health impacts. You are Neha Sharma. Write an article for your school magazine, 'The Young Voice', to discuss the health risks associated with fast food and advocate for healthier eating habits. Write the article using your own ideas as well as the cues given.

- High in calories, sugar, and fat
- Contributes to obesity and chronic diseases
- Impact on concentration and energy levels
- The role of schools and parents in promoting healthy food choices
- Benefits of a balanced diet

5. A recent 'Clean Yamuna Drive' was organised by the Eco Club of ABC Public School, Noida, to clean a stretch of the riverbank. As the senior editorial board member, Rishabh Jain, write a report for the school magazine detailing various aspects of the event. Write the report using your own ideas as well as the cues given.

- Inauguration and significance
- Participant engagement (students, teachers, and local volunteers)
- Challenges faced and solutions adopted
- Impact on the environment and community awareness
- Overall success and future plans

SUBJECT: PHYSICS

1.A 100-ohm resistor is connected to a 220 V, 50 Hz ac supply.
a)What is the rms value of current in the circuit?
b) What is the net power consumed over a full cycle?
2.A 100 μF capacitor in series with a 40Ω resistance is connected to a 110V, 60 Hz supply.
a)What is the maximum current in the circuit?
b) What is the time lag between current maximum and voltage maximum?

3.A horizontal straight wire 10 m long extending from east to west is falling with a speed of 5.0 m/s at right angles to the horizontal component of the earth's magnetic field 0.30 x 10^{-4}Wb m^{-2}
4.A short bar magnet placed with its axis at 30^0experiences a torque of 0.016 Nm in an external field of 800G. (a) what is the magnetic moment of the magnet? (b) what is the work done by an external force in moving it from its most stable to most unstable position? (c) What is the work done by the force due to the external magnetic field in the process mentioned in part (b) ? (d) the bar magnet is replaced by a solenoid of cross-sectional area 2x $10^{-2}m^2$ and 1000 turns, but the same magnetic moment. Determine the current flowing through the solenoid.
5. What is the magnitude of magnetic force per unit length on a wire carrying a current of 8 A and making an angle of 30^0 with the direction of a uniform magnetic field of 0.15 T
6.The plates of a parallel plate capacitor have an area of 90 cm^2 each and are separated by 2.5 mm. The capacitor is charged by connecting it to a 400 V supply
a)How much energy is stored by the capacitor?
b) View this energy stored in the electrostatics field between the plates and obtain the energy per unit volume u. hence arrive at a relation between u and the magnitude of electric field E between the plates.
7.A point charge + 10 μC is a distance 5 cm directly above the centre of a square of side 10 cm as shown in fig, (a) what is the magnitude of the electric flux through the square? (hint: think of the square as one face of a cube with edge 10 cm)

SUBJECT: CHEMISTRY

Ch-7- Alcohols, Phenols and Ethers
1. Ethereal solution of an organic compound A when heated with magnesium gave B. B on treatment with ethanol followed by acid hydrolysis gave 2-propanol. Identify A and B. Write the reactions involved.
2. Give one chemical test each to distinguish between the following pairs of compounds:
a) Phenol and Benzyl alcohol b) 1-Propanol and 2- Propanol
3. A compound(X) with the molecular formula C_3H_8O can be oxidized to another compound(Y) whose molecular formula is $C_3H_6O_2$. Identify X and Y and write the reactions involved.
4. Give reasons:
i) p-nitro phenol is more acidic than p-methyl phenol.
ii) Bond length of C-O bond in phenol is shorter than that of CH_3OH
iii) $(CH_3)_3CBr$ on reaction with CH_3Ona gives alkene as major product and an ether.
iv) Phenylmethyl ether reacts with HI to give phenol and Methyl iodide and not Iodobenzene and Methyl alcohol.
v) Phenol undergoes electrophilic substitution more easily than benzene.
vi) C-O-H bond angle in alcohols is slightly less than the tetrahedral angle (109.28^0)
5. How do you convert the following:
i) Phenol to 2-hydroxy acetophenone. ii) Cumene to p-nitro phenol.
iii) 1-Chloropropane to 1-Propanol iv) 2-Methyl-1-Pentene to 2-Methyl-2-pentanol
v) Acetone to 2-methyl propene vi) Anisole to 2-methoxy toluene

Ch-5- Coordination Compounds
1.Why chelate complexes are more stable than complexes with unidentate ligands?
2.What is spectrochemical series? What is the difference between a weak field ligand and a strong field ligand?
3.Calculate the spin only magnetic moment of the complex $[CoF_6]^{3-}$.
4.Write the IUPAC names of the following.
i. $[CrCL_2(H_2O)_4]CL$ ii. $K_2[PdCL_4]$
5.$[NiCL_4]^{2-}$ is paramagnetic while $[Ni(CO_4)]$ is diamagnetic though both are tetrahedral. Why?
6.For the complexes $[Fe(en)_2CL_2]CL$, $[Pt(NH_3)_2CL_2$ Identify the following.
i. Hybrid orbitals and shape of the complex.
ii.Magnetic behaviour of the complex.
iii. Number of its geometrical isomers.
iv. Whether there may be optical isomer also.
v.Name of the complex and oxidation number of central metal atom
7.When a chromite ore(A) is fused with sodium carbonate in free excess of air and the product is dissolved in water, a yellow solution of compound(B) is obtained. After treatment of this yellow solution with sulphuric acid, compound(C) can be crystallised from the solution. When compound(C) is treated with KCL, orange crystals of compound(D) crystallise out. Identify (A) to (D) and also explain the reactions.

SUBJECT: BIOLOGY

1.Name the primary and secondary lymphoid organs
2.Lysozymes that is present in perspiration, saliva and tears destroy:
a) Certain types of bacteria b) all viruses c) most virus infected cells d) certain fu
3.Draw a well labelled diagram of antibody molecule.
4.Do you think that friends can influence one to take alcohol/drugs? If yes, how may one protect himself / herself from such an influence?
5.Explain why a doctor administer tetanus antitoxin and not a tetanus vaccine to a child injured in a roadside accident with a bleeding wound?
6.Name the microbe that is used for wine making.
7.The decrease in T- lymphocyte count in human blood will result in:
a) decrease in antigens
b) decrease in antibody
c) increase in antibodies
d) increase in antigens
8.a) Name the genus to which baculoviruses belong. Describe their role in the integrated pest management programmes.
b) A person recuperating from illness is advised to have curd regularly. Why?
9.List the components of biogas. What is BOD? How is its amount related to contamination of water?
10. What are molecular scissors? Give an example.
11. Explain any two methods of vector-less gene transfer.
12. List three steps involved in PCR.
13. What is Eco RI? What does 'R' represent in this?
14. Why do lepidopterans die when they feed on Bt cotton plants. Explain how that happens?

SUBJECT: MATHEMATICS

1-Determine whether the below relation is reflexive, symmetric and transitive:
Relation R in the set Z of all integers defined as R = {(x, y): x – y is an integer}
2- If A = {1, 2, 3, 4}, define relation on A which have properties of being: reflexive, transitive but not symmetric.
3-Find the value of $\tan^{-1}\left(\tan\frac{9\pi}{8}\right)$
4-Find the minimum value of n for which $\tan^{-1}\frac{n}{\pi} > \frac{\pi}{4}, n \in N$.
5-Let A = $\begin{bmatrix}2 & 4\\3 & 2\end{bmatrix}$, B = $\begin{bmatrix}1 & 3\\-2 & 5\end{bmatrix}$ and C = $\begin{bmatrix}-2 & 5\\3 & 4\end{bmatrix}$.Find the 3A - 2B + 3C
6-Show that AB≠ BA in the case: $A = \begin{bmatrix}5 & -1\\6 & 7\end{bmatrix} and\ B = \begin{bmatrix}2 & 1\\3 & 4\end{bmatrix}$
7-Evaluate $\begin{vmatrix}\sin 60° & \cos 60°\\-\sin 30° & \cos 30°\end{vmatrix}$.
8-Find the matrix X satisfying the equation: $\begin{bmatrix}2 & 1\\5 & 3\end{bmatrix} X = \begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}$
9-Find $\frac{d}{dx}\left[\sqrt{1-x^2}\sin^{-1}x - x\right]$.
10-Find the value of k for which the function $f(x) = \begin{cases}\frac{x^2+3x-10}{x-2}, & x \neq 2\\ k & ,x = 2\end{cases}$ is continuous at x = 2
11-Find the local maxima and local minima, of function. Find also the local maximum and the local minimum value, as the case may be: $g(x) = x^3 - 3x$
12-The total cost C(x) in Rupees, associated with the production of x units of an item is given by $C(x) = 0.005x^3 - 0.02x^2 + 30x + 5000$.
Find the marginal cost when 3 units are produced, where by marginal cost we mean the instantaneous rate of change of total cost at any level of output.
13-Evaluate: $\int \frac{e^{m\sin^{-1}x}}{\sqrt{1-x^2}}dx$

14-Find the integral: $\int \frac{x^3-x^2+x-1}{x-1} dx$

15-Find the area of the region bounded by the curve $y^2 = 2y - x$ and the Y - axis.

16-Find the area of the region bounded by the curve $y^2 = x$ and the lines x = 1, x = 4 and the x - axis.

17-Solve the differential equation $\frac{dy}{dx} + 1 = e^{x+y}$

18-If y = a cos (log x) + b sin (log x), show that $x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} + y = 0$.

SUBJECT: ARTIFICIAL INTELLIGENCE

1. What is Generative AI?
2. How does Generative AI work?
3. What distinguishes generative models from discriminative models?
4. Give examples of Generative AI applications.
5. What are Generative Adversarial Networks (GANs)?
6. What is a Large Language Model (LLM)?
7. How is Generative AI used in image generation?
8. What ethical considerations surround Generative AI?
9. What are the limitations and risks involved with Learning Language Models?
10. A marketing agency, "Creative Horizons", leverage Generative AI technologies to enhance its campaign strategies. The agency uses various AI models for creating unique advertising content, including Al-generated images, personalised text for email campaigns, dynamic video ads, and innovative audio jingles. One of their key projects involves launching a new line of eco-friendly products for a client. The campaign's success hinges on the uniqueness and engagement of the generated content, aiming to highlight the product's sustainability features innovatively.

1. What are the primary types of AI models used by "Creative Horizons" for their campaign?
2. How does Generative AI contribute to creating personalised email campaign content?
3. Identify one potential ethical consideration the agency must address when using Generative Al in advertising.
4. What is a significant advantage of using Generative AI for dynamic video ad creation?
5. How can "Creative Horizons" ensure their Al-generated content's originality and copyright compliance?

SUBJECT: PHYSICAL EDUCATION

Sai Khelo india fitness tests for age group 5-8 years and 9 to 18 years