



CLAT Gurukul

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By Ready For Exa

RFB GURUKUL

Answer Key — Class-12 PCM Daily Sheet

RFB-XII-A-DPS · 2026-05-30

1. **B**

Coulomb's law: $F = kq_1q_2/r^2$ — force is proportional to the product of charges and inversely to the square of separation.

2. **C**

Capacitance is measured in farads (F); henry is for inductance, tesla and weber for magnetism.

3. **D**

Faraday's law: induced EMF = $-d\Phi/dt$, proportional to the rate of change of magnetic flux.

4. **A**

Lens power $P = 1/f$ (in metres) is measured in dioptres; convex lenses have positive power.

5. **B**

Photoemission occurs only above the threshold frequency, where photon energy exceeds the work function.

6. **C**

A diode conducts appreciably when forward biased; reverse bias allows only a tiny leakage current.

7. **D**

The splitting of white light into its colours by a prism is dispersion, due to wavelength-dependent refraction.

8. **A**

de Broglie: $\lambda = h/p$, so wavelength is inversely proportional to momentum.

9. **B**

An FCC unit cell has 8 corner atoms ($\times 1/8$) + 6 face atoms ($\times 1/2$) = 4 atoms.

10. **C**

The Nernst equation relates electrode potential to the concentration (activity) of the ions involved.

11. **D**

For a first-order reaction, $t_{1/2} = 0.693/k$ is independent of the initial concentration.

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12. **A**
In $[\text{Co}(\text{NH}_3)_6]^{3+}$ the cobalt is bonded to six NH_3 ligands, so the coordination number is 6.

13. **B**
Haloalkanes undergo nucleophilic substitution with aqueous KOH to give alcohols.

14. **C**
Aldehydes and ketones both contain the carbonyl group, $>\text{C}=\text{O}$.

15. **D**
Glucose and fructose are simple sugars (monosaccharides) with the formula $\text{C}_6\text{H}_{12}\text{O}_6$.

16. **A**
Fluorine is the most electronegative element, and the most electronegative among the halogens.

17. **B**
 $d/dx(e^x) = e^x$; the exponential function is its own derivative.

18. **C**
 $\int(1/x) dx = \ln|x| + C$, the standard integral of the reciprocal function.

19. **D**
If $\det(A) = 0$, the matrix is singular and has no inverse.

20. **A**
The probability of an impossible event is 0; a certain event has probability 1.

21. **B**
The dot product of two perpendicular vectors is zero, since $\cos 90^\circ = 0$.

22. **C**
The order of a differential equation is the order of its highest derivative — here d^2y/dx^2 , so order 2.

23. **D**
 $\sin^{-1}(1) = \pi/2$, since $\sin(\pi/2) = 1$ and it lies in the principal range $[-\pi/2, \pi/2]$.

24. **A**
 f is continuous at a if the limit as $x \rightarrow a$ equals the function value $f(a)$.

25. **B**
 $d/dx(\cos x) = -\sin x$, the standard derivative of the cosine function.

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