



STUDY CENTRE

TNPSC GROUP II MAIN EXAM

WARMUP TEST V - PHYSICAL SCIENCE

Total Marks: 300

Time : 3 hrs

Section A

$$15 \times 6 = 90$$

- i.** Answer the following in 50 words each

ii. Answer all the questions

1. Define
a. Light year
b. Astronomical unit

2. Write a note on Asteroids and Comets

3. Explain the working of lightning conductor

4. Explain the concept of Anomalous expansion of water

5. What is meant by resonance? Mention its application

6. Find the size, nature and position of the image formed when an object of size 1 cm is placed at a distance of 15 cm from a concave mirror of focus length 10 cm.

7. Write a note on Aurora Borealis and Aurora Australis
 கிரைஸ் செப்பிளைஸ் மற்றும் அந்தரை
 கிரைஸ்டலைஸ் எழுபி அறிவிப்பீடுகள்

8. Write the working of a Thermoflask
 கூடுதல்தொழுப்பு செயல்கூடுதல் எதும் உபரி
 ஏதுமே

9. Define pH Calculate the pH of 0.001 Molar solution of HCl
 $\text{pH} = -\log_{10}[\text{H}^+]$
 $\text{pH} = -\log_{10}(0.001)$

10. Write a note on buffer solution

11. Differentiate oxidation and reduction

12. Answer the following questions.

- a. State the uses of Ethylene

- b. What are hard and soft soaps?

- Answer the following questions.**

- #### a. Octane and Cetane Number

- b. Producer gas

Write a note on magnetic separation.

Answer the following questions

4. Explain the behaviour of water as acid and base
திரும் அமிலம், அறி பல்வகையான விவரங்கள்.

5. Is water a mixture or a compound?
திரும் ஒரு மூச்சாக அல்லது ஒரு கலபுரை? என்று விடையளிப்பால்.

Section B

$$10 \times 12 = 120$$

- i. Answer the following in 150 words each (1.5 pages)

- ## **ii. Answer all the questions**

16. Describe the building block of the universe and age of the universe.

17. What is Doppler Effect? Write its applications.

18. Write the applications of electromagnets
19. Explain the defects in eye
20. Write a short note on formation of Rainbows
21. Define oxidation number. Discuss the rules of oxidation number with suitable examples.
22. Explain the fractional distillation of petroleum
23. What are alloys? Explain the reasons for alloying and method of making alloys.
24. Write a short note on
- a. Natural gas / LPG
 - b. LPG
 - c. CNG
25. What are plastics? Mention its types and impacts?
- Section C**
- $6 \times 15 = 90$
- i. Answer the following in 250 words each (2.5 pages)
- ii. Answer all the questions
26. Explain the various effect of electric current
- a. Heating effect
 - b. Chemical effect
 - c. Magnetic effect of electricity
27. Write a note on electromagnetic spectrum and its classification.
28. Explain the following heading with suitable example
- Ques 28**
- a. Intrinsic and extrinsic semiconductors
- b. P-N junction diode
29. What are periodic properties? Give the trends in periodic properties of elements with the reasons.
- a. Ionization Energy
 - b. Electron affinity
 - c. Electronegativity
30. Explain the following Acid-Bases Theories with suitable examples
- a. Arrhenius concept
 - b. Lowry - Brooker concept
 - c. Lewis concept
31. Write note on special features of carbon with reference the following terms
- a. Catenation
 - b. Tetravalency
 - c. Multiple bonds
 - d. Isomerism
 - e. Allotropy