



**C16-A/AA/CH/CHST/
C/CM/EC/EE/M/AEI/
MET/MNG/MET/IT/
TT/PKG-103**

5003

**BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER-2018
DAE-FIRST YEAR EXAMINATION**

ENGINEERING PHYSICS

Time : 3 Hours]

[Total Marks: 80

PART-A

2X15=30

- Instructions :**
1. Answer **Any Fifteen** questions.
 2. Each question carries TWO marks.
 3. Answers should be brief and straight to the point and shall not exceed four simple sentences.

1. Define Dimensional Formula. Write an example ?
2. Write any two uses of SI units ?
3. State Triangle law of vectors with near figure ?
4. Find the amount of work done when a force of $F = (1\vec{i} + 3\vec{j} + 5\vec{k})\text{N}$ acts on a body and displaces it by $S = (4\vec{i} + 2\vec{j} - \vec{k})\text{m}$?
5. Write any two equations of motion of a freely falling body ?
6. Define acceleration due to gravity ? Write its units ?
7. Define Friction? Write any two examples?
8. Write any two methods to minimize friction ?
9. Define potential energy and kinetic energy ?
10. Define simple harmonic motion? Write any two conditions ?

11. Displacement of a particle under simple harmonic motion is $y=0.2\sin(10\pi t+45^\circ)$ mm.
find i) amplitude ii) angular velocity ?
12. State first law of thermodynamics and explain ?
13. Why C_p is greater than C_v ?
14. Write any two differences between music and noise ?
15. Define Doppler effect ? Write its applications ?
16. a) State Hookes law of elasticity b) Define elastic limit ?
17. write the examples of surface tension ?
18. a) Define Magnetic field ? b) State coulomb's inverse square law of magnetism ?
19. a) Write the expression for couple acting on a bar magnet placed in an uniform magnetic field ?
b) Define magnetic moment ?
20. write any two applications of Photoelectric cell ?

PART-B

10X5=50

- Instructions** :
1. Answer any **five** questions.
 2. Each question carries **ten** marks.
 3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

21. a) State Parallelogram law of vectors. Derive an expression for the magnitude and direction of the resultant vector ? 7M
- b) if $|\vec{a} \cdot \vec{b}| = |\vec{a} \times \vec{b}|$ find the angle between \vec{a} and \vec{b} ? 3M
22. a) Define Projectile. Show that path followed by an obliquely projected body is a parabola ? 7M
- b) A body is thrown vertically upwards with a velocity 19.6ms^{-1} from the ground. Find its time of flight ($g=9.8\text{ms}^{-2}$) ? 3M

23. a) State law of conservation of energy. Prove it in case of a freely falling body ? 7M
 b) A machine gun fires 240 bullets per minute. Each bullet moves with velocity of 600ms^{-1} . If mass of each bullet is 2gm, Find the power of the gun ? 3M
24. a) Define simple pendulum. Derive an expression for the time period of a simple pendulum ? 7M
 b) If length of a seconds pendulum is doubled how does the time period change ? 3M
25. a) Derive an ideal gas equation ? Write the significance of R ? 7M
 b) The volume of a gas is 20cc at 27°C Pressure remaining constant if volume is doubled, find its final temperature ? 3M
26. What is Noise Pollution? Write any four causes and four effects of noise pollution? 10M
27. a) State kirchoff's laws of electricity ? Obtain the balancing condition for Wheatstone bridge ? 7M
 b) Determine the current flowing through the filament of lamp having a constant resistance of 440 ohm and connected across 220 volt main ? 3M
28. a) What is optical fibre ? Write the principle and working of Optical Fibre with a neat diagram ? 7M
 b) Define Superconductivity and write any two applications of it ? 3M

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