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C16S- A/AA/C/CH/ CHST/CM/ EC/EE/ EI/ M/MET/ MNG/IT/TT/PKG -203

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BOARD DIPLOMA EXAMINATION, (C-16S)
OCTOBER/NOVEMBER-2018
SECOND SEMESTER EXAMINATION

ENGINEERING PHYSICS

Time : 3 Hours] [Total Marks: 80

PART-A

2X15=30

Instructions :
1. Answer any 15 questions.
2. Each question carries 2 marks.
3. Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. Name any two advantages of friction.
2. Define angle of friction.
3. Define potential energy write its dimensional formula.
4. Define work and power
5. State the law of conservation of energy.
6. Write two examples for kinetic energy.
7. Write the definition of simple harmonic motion
8. Define the terms amplitude and frequency of a particle in simple harmonic motion.
9. The displacement of a particle in simple harmonic motion is $y=4\sin(2\pi t + \frac{\pi}{4})$. Find the angular velocity and time period.
10. Define phase of SHM.
11. Write any two applications of beats.
12. Define the musical sound and noise.
13. Mention two causes of noise pollution.
14. Define surface tension.

15. State Hook's law of elasticity.
16. Define stress. Write its formula.
17. State coulomb's law of magnetism.
18. Define magnetic moment. Write its SI units.
19. Write two characteristics of magnetic lines of force.
20. State Kirchhoff's law of electricity.

PART-B

10X5=50

Instructions : 1. Answer any **Five** questions.
2. Each question carries **ten** marks.

21. (a) Derive the expression for the acceleration of a body on a rough horizontal surface
    (b) Write any four advantages and two disadvantages of friction.
22. (a) State and prove the law of conservation of energy in case of freely falling body.
    (b) A machine gun fires 360 bullets per minute each bullet has a mass of 10 grams and velocity of 400 m/s. Find the power of the machine gun.
23. (a) Derive the expression for velocity and acceleration of a particle executing SHM
    (b) Find the length of second's pendulum on earth ($g=9.8\ m/s^2$)
24. (a) Derive the expression for time period of oscillation of a simple pendulum
    (b) Write any three conditions for simple harmonic motion.
25. (a) Write any three effects of noise pollution and three methods of reducing noise pollution.
    (b) State any four applications of Doppler Effect.
26. (a) Distinguish between musical sound and noise.
    (b) State five causes of noise pollution.
27. (a) Derive the balancing condition of wheatstone's bridge.
    (b) In a Wheatstones bridge circuit Q = 4Ω, R = 5 Ω and S= 6 Ω what is the resistance P required to balance the bridge.
28. (a) Derive the expression for the couple acting on a bar magnet in uniform magnetic field.
    (b) Define the terms (i) Magnetic field (ii) Magnetic induction field strength

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