3023

BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2014
DCME—FIRST YEAR EXAMINATION

ENGINEERING PHYSICS

Time : 3 hours]　　　　　　　　　　　　　　　[*Total Marks* : 80

PART—A　　　　　　3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Check correctness of equation v^2　$2gh$.

2. State and explain polygon law of vectors.

3. Define a horizontal projectile and write the formula for its trajectory.

4. State three methods to minimize friction.

5. Define SHM and give two examples.

6. State first law and second law of thermodynamics.

7. State any three applications of Doppler effect.

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8. Define three types of strain.

9. State Coulomb's inverse square law in respect of magnetism and write its formula.

10. Write three applications of an optical fiber.

PART—B   10×5=50

Instructions : (1) Answer *any* **five** questions.

             (2) Each question carries **ten** marks.

             (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* State and explain triangle law of vector addition.   4

    (b) Define dot product and vector product. Give one example of each.   6

12. *(a)* Show that the path of an oblique projectile is a parabola.   6

    (b) Derive the formulas for maximum height and time of ascent in the case of a body thrown up vertically.   4

13. *(a)* Define conventional and non-conventional energy sources and give examples.   4

    (b) Define PE and KE. Give examples.   3

    (c) Show that $PE = mgh$.   3

14. *(a)* Explain experimental method of determination of acceleration due to gravity g using simple pendulum.   8

    (b) Define second's pendulum. How does its time period vary with g?   2

15. *(a)* State gas laws.   3

    (b) Derive ideal gas equation $PV = RT$.   6

    (c) Write gas equation in terms of density.   1

16. *(a)* Define noise pollution.

(b) State the effects of noise pollution and state the methods to minimize noise pollution. 10

17. *(a)* Explain surface tension on the basis of molecular theory. 4

(b) Explain experimental determination of viscosity. 6

18. *(a)* Explain the working of Wheatstone bridge and derive its principle. 8

(b) In a Wheatstone bridge circuit the resistances 10 , 12 , 8 and x are joined as shown in the figure :
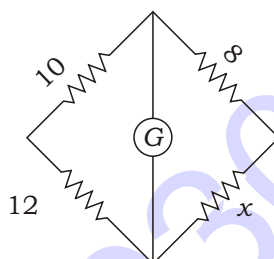
If the bridge is balanced, find the value of x. 2

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