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C20-M-CHOT-RAC-103

7050

BOARD DIPLOMA EXAMINATION, (C-20)

SEPTEMBER/OCTOBER—2021

DME - 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. State limitations of dimensional analysis.
2. State triangle law of vectors with a neat diagram.
3. Define oblique projectile and give any two examples.
4. State any three advantages of friction.
5. If two bodies weighing 2 kg and 1kg respectively have their kinetic energies in the ratio 8:1, find the ratio between their momenta.
6. State laws of motion of simple pendulum.
7. State and explain first law of thermodynamics.
8. State any three applications of doppler effect.
9. If a wire of resistance “R” is stretched to three times of its original length, find the new resistance of the wire.
10. State Coulomb’s law of magnetism and write its formula.

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PART—B

8×5=40

- Instructions : (1) Answer all questions.
(2) Each question carries eight marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Derive expressions for magnitude and direction of resultant vector using parallelogram law of vectors.

OR

- (b) A stone is projected with a velocity of 30 m/s at an angle of 30° with horizontal. Calculate maximum height, time of flight, horizontal range and maximum horizontal range of projectile.

12. (a) Derive an expression for acceleration of a body sliding upwards over a rough inclined plane.

OR

- (b) State conservation law of energy and verify in the case of a freely falling body.

13. (a) Derive an expression of the time period of motion of a simple pendulum.

OR

- * (b) Define an ideal gas and derive ideal gas equation.

14. (a) Define noise pollution and write six methods of controlling noise pollution.

OR

- (b) Define surface tension. Write any three applications for surface tension and explain effects of temperature on viscosity of liquids and gases.

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15. (a) Explain Wheatstone's bridge and derive a formula for the balancing condition of the bridge.

OR

- (b) Explain photo electric cell and state four applications of photo electric effect.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) It carries ten marks.

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

16. State the factors of influence on the value of 'g' and show that the path of a body projected horizontally from the top of a tower is a parabola.

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