SERIES: A

QP CODE: 24900204

SERIES: A **Reg No:.....**

Name:.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

FIRST SEMESTER MGU-UGP (HONOURS) REGULAR EXAMINATION NOVEMBER 2024

First Semester

Multi-Disciplinary Course - MG1MDCPHY100 - PHYSICS AROUND YOU

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours Maximum Marks: 35

Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Interest (I), Appreciation (Ap), and Skill (S)

Students should attempt atleast one question from each course outcome to enhance their overall outcome attainability.

[Learning Domain][CO No(s)]

Part A

Multiple Choice Questions

Answer all questions

Each carries 1 mark

1 What is the SI unit of temperature? [K] [1]

a) Celsius b) Fahrenheit

c) Kelvin d) Joule

2 1 Litre=----------millilitres [K] [1]

a) 10 b) 100

c) 1000 d) 10000

3 What is velocity? [U] [1]

a) Speed with direction b) Distance without direction

c) Distance per time d) Force per mass

SERIES:A

4	In free fall, what remains constant for a falling object?		[U]	[1]
	a) Speed	b) Velocity		
	c) Acceleration due to gravity	d) Distance covered		
5	What is the unit of Efficiency?		[K]	[1]
	a) Joule	b) Newton		
	c) No Unit	d) Erg		
6	When the source of a sound is moving towards a stationary observer, the frequency of the sound:		[U]	[1]
	a) Increases	b) Decreases		
	c) Remains the same	d) Becomes zero		
7	Wavelength range of sound waves audible to humans is:		[U]	[1]
	a) 20 to 20000 Hz	b) 20 to 2000 Hz		
	c) 20 to 20000 kHz	d) 20 to 2000 kHz		
8	Electric power is the product of ….....		[K]	[2]
	a) Resistance and Current	b) Voltage and Resistance		
	c) Current and Voltage	d) Energy and Current		
9	A circuit that has only one path for current to flow is called:		[U]	[1]
	a) Series circuit	b) Parallel circuit		
	c) Closed circuit	d) Open circuit		
10	Which material is commonly used in making optical fibers?		[K]	[3]
	a) Plastic	b) Glass		
	c) Carbon fiber	d) Copper		
11	Which phenomenon explains the whiteness of clouds?		[K]	[3]
	a) Rayleigh scattering	b) Mie scattering		
	c) Snell's law	d) Compton scattering		
12	Why does blue light scatter more than red light?		[U]	[3]
	a) Higher wavelength	b) Shorter wavelength		
	c) Lower frequency	d) Higher speed		
13	Which phenomenon makes stars appear to flicker?		[U]	[3]
	a) Reflection	b) Diffraction		
	c) Refraction	d) Polarization		

14 Which application uses total internal reflection? [A] [3]

a) Endoscopes b) Mirrors

c) Telescopes d) Prisms

15 Laser light is produced due to [U] [4]

a) interference phenomenon b) spontaneous emission of light

c) stimulated emission of radiation d) diffraction phenomenon

(15 × 1 = 15)

Part B

Multiple Choice Questions

Answer all questions

Each question carries 2 marks

16 Which law of motion states that force is equal to mass times acceleration? [K] [1]

a) Newton's First Law b) Newton's Second Law

c) Newton's Third Law d) Law of Gravitation

17 A 60 kg person climbs 5 m up a staircase. What is the work done? [U] [1]

Hint:Work=Force x displacement

a) 2940 J b) 300 J

c) 5880 J d) 1470 J

18 A crane lifts a load of 200 kg at 5 m/s by applying a force of 1000 N. [U] [1]

Calculate the power of the crane.

a) 5000 W b) 2000 W

c) 4000 W d) 10000 W

19 What is the primary characteristic that distinguishes longitudinal waves from transverse waves? [U] [1]

a) Amplitude b) Velocity

c) Frequency d) Direction of particle displacement

20 In astronomy, the Doppler effect is used to measure: [U] [1]

a) The temperature of stars
b) The velocity of stars and galaxies
c) The size of distant planets
d) The age of the universe

21 What is the frequency of AC supply in India? [K] [2]

a) 60 Hz
b) 50 Hz
c) 100 Hz
d) 230 Hz

22 What is the potential difference across a resistor of 2Ω with 5A current? [U] [2]

a) 10V
b) 5V
c) 2V
d) 1V

23 Waves in decreasing order of their wavelength are [K] [3]

a) Radio waves, ultraviolet rays, visible light, X - rays
b) Radio waves, visible light, infrared rays, X- rays
c) Radio waves, infrared rays, visible light, X - Rays
d) X - rays, infrared rays, visible light, radio waves

24 What is the critical angle in optics? [K] [3]

a) The angle where refraction ceases
b) The angle where reflection stops
c) The angle beyond which total internal reflection occurs
d) The angle where absorption begins

25 What is the primary function of the lasing medium in a laser system? [U] [4]

a) Reflect light
b) Amplify light
c) refract light
d) absorb light

(10 × 2 = 20)

END OF THE QUESTION PAPER

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a) Speed with direction b) Distance without direction

c) Distance per time d) Force per mass

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a) Lower frequency b) Higher speed

c) Higher wavelength d) Shorter wavelength

3 A circuit that has only one path for current to flow is called: [U] [1]

a) Closed circuit b) Open circuit

c) Parallel circuit d) Series circuit

SERIES: B

4 1 Litre=----------millilitres [K] [1]

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c) 10 d) 100

5 What is the unit of Efficiency? [K] [1]

a) Erg b) Newton

c) Joule d) No Unit

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a) spontaneous emission of light b) interference phenomenon

c) stimulated emission of radiation d) diffraction phenomenon

11 When the source of a sound is moving towards a stationary observer, the frequency of the sound: [U] [1]

a) Becomes zero b) Decreases

c) Increases d) Remains the same

12 In free fall, what remains constant for a falling object? [U] [1]

a) Acceleration due to gravity b) Velocity

c) Speed d) Distance covered

13 Electric power is the product of …..... [K] [2]

a) Current and Voltage b) Voltage and Resistance

c) Resistance and Current d) Energy and Current

SERIES:B

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c) Mie scattering d) Compton scattering

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c) Newton's First Law d) Newton's Second Law

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c) Radio waves, infrared rays, visible light, X - Rays d) Radio waves, visible light, infrared rays, X- rays

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a) The angle where absorption begins b) The angle beyond which total internal reflection occurs

c) The angle where refraction ceases d) The angle where reflection stops

25 What is the frequency of AC supply in India? [K] [2]

a) 100 Hz b) 230 Hz

c) 50 Hz d) 60 Hz

(10 × 2 = 20)

END OF THE QUESTION PAPER

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