

PHYSICS

PAPER : PART – I

MARKS: 68

TIME : 2:40 Hours

Model Paper (AJK Syllabus)

INTERMEDIATE

(SUBJECTIVE PART)

SECTION – I

2- Write short answers of any eight parts.

(2 x 8 = 16)

i	Why do we take a large number of observations while performing an experiment?	ii	What are the advantages of dimensional analysis?
iii	What are the two ways of recording uncertainties?	iv	Why do we get hurt more on falling on a cemented floor as compare to a fall on a heap of sand?
v	Two bodies one heavy and one light have equal kinetic energies. Which of the two possesses greater momentum?	vi	When a fielder catches the ball then he moves his hand in backward direction along the direction of motion of the ball, why?
vii	Due to smaller value of 'g' a man can jump higher on the surface of the moon. Can he sun faster on this account?	viii	How can you estimate your muscle power?
ix	How would you prefer nuclear energy to electric energy? Justify your answer.	x	Why is moment of inertia of a body always referred about a given axis?
xi	What do you mean by 'optimum speed' as referred to a banked road?	xii	Since gravity is an attractive force and can be a centripetal force. But in spaceships gravity is provided by centrifugal force which is not attractive one. How it is made possible?

3- Write short answers of any eight parts.

(2 x 8 = 16)

i	How will you explain the projection of a stone with the help of sting using vector addition of forces?	ii	Illustrate by diagram the angle between the two vectors, if their sum is equal to their subtraction.
iii	Why does the dot/scalar product obey commutative law but the vector product does not?	iv	What are the limitations to the application of Stoke's formula?
v	What are the factors upon which critical velocity depends?	vi	Draw a graph between blood pressure and time, and mark/ label the peaks.
vii	State the conditions in which a periodic motion becomes simple harmonic motion.	viii	In equation $y = A \sin(\omega t \pm \phi)$, what is the physical significance of ϕ ?
ix	What are the two factors responsible for simple harmonic motion?	x	Is it possible for two astronauts to talk in space directly to one another even if they remove their helmets?
xi	What the waves transport and what they do not?	xii	What the basic deriving formulas for the speed of sound in air?

4- Write short answers of any six parts.

(2 x 6 = 12)

i	Give the conditions for the steady state interference of light.	ii	Differentiate between Magnification and Resolving power.
iii	Write two applications of Bragg's law.	iv	Differentiate between interference and diffraction patterns.
v	Describe a way/method to get two coherent sources of light.	vi	Why is it not possible to convert a given amount of heat completely in to work? Is the reverse possible?
vii	Is it possible to cool a room by keeping the door of refrigerator open? Justify your answer.	viii	How does entropy indicates the direction of passage of time? Explain shortly.
ix	Would you prefer a Diesel engine to a petrol engine? Give reason.		

SECTION – II

Note:- Attempt any three questions.

(8 x 3 = 24)

5	(a)	Define Significant figures. And write the rules of rounding off the insignificant figures.	(05)
	(b)	A screen is separated from a double slit source by 1.2m. The distance between the two slits is 0.03mm. The second order bright fringe is measured to be 4.5cm from the central line. Determine the wavelength of light used.	(03)
6	(a)	Define Escape velocity with respect to earth. And derive its relation and numerical value.	(05)
	(b)	A force of 5N is applied perpendicularly to the plane of uniform door 2m high and 0.06m wide. Find the torque about the line joining the hinges.	(03)
7	(a)	What you mean by projectile motion? And derive the relation for final velocity after time 't' seconds of a projectile. Also write relation for angle ϕ that velocity vector makes with horizontal at that instant.	(05)
	(b)	A circular disc of mass 25 kg and radius 0.5, is mounted co-axially and made to rotate. Find its kinetic energy when rotating at the rate of 120 rev/min.	(03)
8	(a)	Derive Bernoulli's equation for an ideal fluid.	(05)
	(b)	336 J of energy is required to melt 1 gram of ice at 0°C. What is the change in entropy of 30 gram of water at 0°C by a refrigerator?	(03)
9	(a)	Define stationary waves. And generalize a formula for the frequency of stationary waves produced in a stretched string fastened at both ends.	(05)
	(b)	A faulty second's pendulum loses 10 seconds a day. Find the required alteration in length that it may keep correct time.	(03)

PHYSICS (OBJECTIVE PART)**PART – I**Model Paper (AJK Syllabus)
(INTERMEDIATE)**PHYSICS**

(INTERMEDIATE)

(PART – I)
(OBJECTIVE PART)

Model Paper (AJK Syllabus)

Marks : 17

Time : 20

Minutes

Note:- Write your Roll No. in space provided. Over writing, cutting, using of lead pencil will result in loss of marks. All questions are to be attempted.

1- Each question has four possible answers, Tick (✓) the correct answer. (17)

1	The dimensions of the "light year" are as:							
	A	[T]	B	[MLT ⁻¹]	C	[LT ⁻¹]	D	[L]
2	If R _x and R _y both are negative, then the resultant vector R lies in the quadrant:							
	A	1 st	B	2 nd	C	3 rd	D	4 th
3	Two vectors having magnitudes 60 and 30, can give, when:							
	A	20	B	70	C	100	D	180
4	If the mass of a body is doubled, then acceleration becomes:							
	A	Double	B	Same	C	Half	D	One fourth
5	The acceleration along x-axis in case of projectile motion is:							
	A	Zero	B	9.8 m/s ²	C	Increasing	D	Decreasing
6	Work has the dimensions as that of:							
	A	Momentum	B	Velocity	C	Torque	D	Power
7	The escape velocity of stone of mass 0.5kg is:							
	A	0.5 x 11 km/s	B	11/0.5 km/s	C	11 km/s	D	0.5 + 11 km/s
8	In rotational motion analogous of force is:							
	A	Inertia	B	Torque	C	Mass	D	Momentum
9	The S.I unit of angular momentum is;							
	A	Kg m/s	B	Kg m/s ²	C	Kg m ² /s	D	Kg m ² /s ²
10	Let a small spherical body of radius 'R' is falling through a fluid, its terminal speed varies as:							
	A	$V_t \propto R$	B	$V_t \propto R^2$	C	$V_t \propto R^3$	D	$V_t \propto \frac{1}{R}$
11	Time periods T _K , T _M of the same pendulum at Karachi and at Murree, respectively are related as:							
	A	T _K > T _M	B	T _K < T _M	C	T _K = T _M	D	2 T _K = 3 T _M
12	Sound waves cannot travel through:							
	A	Air	B	Water	C	Wood	D	Vacuum
13	Radar system is an application of:							
	A	Compton Effect	B	Doppler Effect	C	Electric Effect	D	Magnetic Effect
14	The blue colour of sky is due to this property of light:							
	A	Diffraction	B	Reflection	C	Polarization	D	Scattering
15	The fringe spacing in interference pattern increases if we use, instead of orange light:							
	A	Red light	B	Blue light	C	Yellow light	D	Green light
16	Cloud formation in atmosphere is an example of:							
	A	Isothermal process	B	Adiabatic process	C	Isobaric process	D	Isochoric process
17	The true relation between R, C _p , C _v for an ideal gas is:							
	A	C _v - C _p = R	B	C _v = C _p + R	C	C _p = C _v + R	D	C _p + C _v = R

(The End)