AAFAQ ACADEMY – KASUR

Paper: Physics **Chapter (5)1** **Class: F.Sc. Part – I**

CIRCULAR MOTION

Name: _____ Roll No: (in words) _____

EVENING GROUP

OBJECTIVE TYPE

Total Marks: 11 **Paper Code: _____** **Total Time: 10 Minutes**

NOTE: Write your **Roll No.** in space provided. Using lead pencil will result in loss of marks.

Q.No.1: You have four choices for each objective type question as A,B,C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Sr. No.	QUESTION	A	B	C	D
1.	The dimensions of the ratio of angular to linear momentum is	$[MLT^{-1}]$	$[ML^2T^{-1}]$	$[M^0LT^0]$	$[MLT]$
2.	The work done by the centripetal force F when it completes one revolution around a circle of radius R is	$2nRF$	$2RF$	RF	$Zero$
3.	Correct relationship between torque and momentum of intertia is	$\tau = I\theta$	$\tau = Ia$	$\tau = I\omega$	$\tau = I\alpha$
4.	The diver spin faster when moment of inertia becomes	Greater	Smaller	Remains constant	$Zero$
5.	When a body moves along a circular path, its velocity	Remains constant	Becomes zero	Changes continuously	Always increases
6.	The Einstein's theory predicted the bending of light due to gravity as compared to that due to Newton's theory, as	Same	Twice	Thrice	Remains same
7.	A particle starts from rest with an acceleration of $2rad \bullet s^{-2}$ in a circle of radius $2m$. Find its linear speed after $6s$	$12m \bullet s^{-1}$	$24m \bullet s^{-1}$	$4m \bullet s^{-1}$	None of these
8.	What will be the duration of the day and night (in hours) if the diameter of the earth is suddenly reduced to half its original value, the mass remaining constant	12	6	3	2
9.	The angular speed for daily rotation of earth in $rad \bullet s^{-1}$ is	$2n$	n	$7 \bullet 3 \times 10^2$	$7 \bullet 3 \times 10^{-5}$
10.	What remains constant when the Earth revolves around the sun?	Angular momentum	Linear momentum	Angular K.E.	Linear K.E.
11.	The axis of rotation of an object will not change its orientation unless an external _____ causes it to do so	Force	Torque	Momentum	All of these

SUBJECTIVE TYPE

Total Marks: 18 **Time Allowed: 0 Hours 50 Minutes**

SECTION – I (SHORT QUESTIONS)

2. Attempt any FIVE questions. (5×2=10)Marks

i. A disc and a hoop start moving down from the top of an inclined plane at the same time, which one will be moving faster on reaching the bottom?

ii. Describe what should be the minimum velocity for a satellite to orbit close to the earth.

iii. Why does a diver change his body positions before diving in the pool?

iv. Prove that orbital angular momentum $L_0 = mvr$.

v. Describe what should be the minimum velocity, for a satellite, to orbit close to the Earth around it.

vi. Why mud flies off the tyre of a moving bicycle, in what direction does it fly? Explain.

vii. Prove that $v = r\omega$.

SECTION – II (ESSAY TYPE) Attempt given question

3. Do as directed...

i. What is meant by centripetal force? Also derive the expression for centripetal force. (5)

ii. What should be the orbiting speed to launch a satellite in a circular orbit $900km$ above the surface of the Earth? (Take the mass of Earth as $6 \bullet 0 \times 10^{24} kg$ and its radius as $6400km$). (3)

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SECTION – III (Practical)

4. (a) Write answer of TWO questions. (2×2=4)

i. a
ii. c
iii. v
iv. b

4. (b) Write procedure to determine the resistance of voltmeter by graph method. (3)

(OR)

Write procedure to find the unknown high resistance by using neon flash lamp. (3)

4. (c) Answer the following questions on the basis of graph drawn between potential difference (V) and charge (Q). (4)

i. What you conclude from the graph?
ii. Find the capacitance of capacitor from the graph.

Good Luck
Ch. Khalid Mahmood Ashraf