M. Phil. Physics Entrance Sample test 2023

Rawalpindi Women University

Note: Each question carries one point and there is no negative marking.

The test passing score is 50%.

The Test will have 4 sections:

(a) General Physics

(b) English

(c) General Mathematics

(d) Analytic Reasoning

1.	Electromagnetic radiation emitted from a nucleus is most likely to be in the form of			
	(a) gamma rays	(b) microwaves	(c) ultraviolet radiation	(d) visible light
2.	The binding energy per nucleon is greatest for which of the following nuclei?			
	(a) $_2^3He$	(b) $_2^4He$	(c) $_{26}^{56}Fe$	(d) $_{92}^{235}U$
3.	α particles are			
	(a) helium nuclei	(b) sodium nuclei	(c) ionized nuclei	(d) hydrogen nuclei
4.	Which of the following subshells is represented by the quantum numbers $n = 4 \; and \; \ell = 1$?			
	(a) 4s	(b) 4f	(c) 4d	(d) 4p
5.	The clarification of discrete energy levels in atom was first given experimentally by			
	(a) Thomson's experiment	(b) Millikan's oil drop experiment	(c) Frank-Hertz experiment	(d) Rutherford scattering experiment
6.	The unit of Planck's constant is equivalent to that of			
	(a) energy	(b) angular momentum	(c) velocity	(d) force
7.	With the increase in quantum number the energy difference between consecutive energy levels			
	(a) remains constant.	(b) decreases.	(c) increases.	(d) sometimes increases sometimes decreases.
8.	A photon of frequency f undergoes Compton scattering from an electron at rest and scatters through an angle θ. The frequency of scattered photon is f' then			
	(a) $f' > f$	(b) $f' = f$	(c) $f' < f$	(d) given information is incomplete.
9.	Which of the following is the correct formula for average velocity?			
	(a) $v = dx/dt$	(b) $v = x/t$	(c) $v = xt$	(d) $v = t/x$

10.	Which of the following is the mathematical representation of law of conservation of total linear momentum?			
	(a) $dP/dt = 0$	(b) $dF/dt = 0$	(c) $dP/dt = F$	(d) $dF/dt = P$
11.	Choose the correct statement:			
	(a) Milk is more cheap than water.	(b) Milk is cheaper than water.	(c) Milk is cheap than water.	(d) Milk is cheapest than water.
12.	Choose the correct question statement.			
	(a) Why are our trains so late compared by European trains?	(b) Why are our trains so late compared with European trains?	(c) Why are our trains so late compared on European trains?	(d) Why are our trains so late compared under European trains?
13.	Choose the correct statement.			
	(a) Her brother is an engineer.	(b) Her brother is a engineer.	(c) Her brother is the engineer.	(d) Her brother is engineer.
14.	Fill in the blanks : ___ more you concentrate, ___ better you become.			
	(a) the, a	(b) the, the	(c) a, a	(d) the, then
15.	Choose the correct statement.			
	(a) One must keep one's words.	(b) One must keep one's word.	(c) One must keep ones words.	(d) One must keep ones word.
16.	Choose the correct statement:			
	(a) The fire caused many damages.	(b) The fire caused much damage.	(c) The fire caused many damage.	(d) The fire caused much damages.
17.	If *A* represents the area and *C* represents the circumference of the circle, then *A* in terms of *C* is:			
	(a) $2\pi/C$	(b) $4\pi^2/C$	(c) $2\pi^2/C^2$	(d) $C^2/4\pi$

18.	12 is 1/3 % of which number?			
	(a) 4	(b) 400	(c) 36	(d) 3600

19.	If the length of the rectangle is increased by 16% and the width is decreased by 25% then the area			
	(a) Increases by 9%	(b) decreases by 41%	(c) decreases by 13%	(d) Increases by 59%

20.	If $a + b = 8$, $b + c = 9$ and $c + a = 11$, What is the average of a, b, and c?			
	(a) 14/3	(b) 28/3	(c) 14/6	(d) 7/3

Analytical Reasoning

Questions 21 to 23:

Three men (Tom, Peter, and Jack) and three women (Eliza, Anne, and Karen) are spending a few months at a hillside. They are to stay in a row of nine cottages, each one living in his or her own cottage. There are no others staying in the same row of houses.

- Anne, Tom, and Jack do not want to stay in any cottage, which is at the end of the row.

- Eliza and Anne are unwilling to stay beside any occupied cottage.

- Karen is next to Peter and Jack.

- Between Anne and Jack's cottage there is just one vacant house.

- None of the girls occupy adjacent cottages.

- The house occupied by Tom is next to an end cottage.

21	How many of them occupy cottages next to a vacant cottage?			
	(a) 2	(b) 3	(c) 4	(d) 5

22	1) Which among these statement(s) are true? I. Anne is between Eliza and Jack. II. At the most four people can have occupied cottages on either side of them. III. Tom stays besides Peter.			
	(a) I only	(b) II only	(c) I and III only	(d) II and III only

23	Which of the above statements can be said to have been derived from two other statements?			
	(a) Statement 1	(b) Statement 2	(c) Statement 3	(d) Statement 5