



**Faculty of Science
Physics Department**

Final term Exam (120 degree)
General theory of Relativity
22.12.2018
Two hours (9:30-11:30)



1- a) Discuss briefly how to detect Gravitational wave? What does this method mean?

(24 degree).

b) Gravitational waves are the most important prediction of Einstein, detected now a day.

I) discuss the nature of gravity?

II) What are gravitational waves?

III) What are the astrophysical sources of gravitational waves?

V) What is the future of understanding the gravitational waves? (16 degree).

2) a) In Space-Time a geodesic curve is the path of a particle moving in the curved space due to mass-energy and so is the analog of the straight line motion of an object not acted on by a force as given by Newton's first law. Discuss? (20 degree).

b) Defined Riemann Curvature and Semi-Riemannian Space? (20 degree).

3- a) Deduce the Thermodynamic properties of Neutron star and White Dwarf? (24 degree).

b) Write short note about: (16 degree).

I) Geodetic Deviation.

II) Frame Dragging.

III) The two postulates of General Relativity.

IV) Black Holes

With my best wishes
Dr. M. M. Aish