

**Development of design for quake-resistant buildings**

586 . SHRI BAISHNAB PARIDA: Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the IIT Roorkee Scientists or others have developed a design for quake-resistance system for buildings with used tyres etc., in the country, if so, the details thereof; and

(b) to what extent this would help to control deaths during earthquakes and other such calamities?

THE MINISTER OF STATE IN THE MINISTRY OF EARTH SCIENCES (SHRI Y. S. CHOWDARY): (a) and (b) Yes Sir. A new construction technique for earthquake resistant housing is being developed in the Department of Earthquake Engineering, IIT, Roorkee. This is based on interlocking of pre-cast slotted concrete blocks with the help of energy dissipation links.

This complete interlinked block masonry system is well inter- connected and robust in itself. The seismic performance of this interlocked block masonry system with energy dissipator links has been verified under simulated strong earthquake conditions on the shake table and shock table testing facility. The simulated motion corresponds to the strongest earthquake motion expected in the seismic zone V (the most severe zone) of IS-1893. The concept of block masonry with visco-elastic link is completely successful since the energy is completely released through friction between the blocks and yielding of links at the bottom portion of the model. The developed low- cost system has been found to be very effective in withstanding strong earthquake motions without any distress.

**Vacant posts in the institutions**

587. SHRI C.P. NARAYANAN: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) the number of posts of Directors, Scientists and Student researchers vacant at present in various Science and Technology Institutions;

(b) whether Government have initiated action to fill them;

(c) when are the positions expected to be filled;

(d) how many of these vacancies are reserved for SCs, STs and OBCs; and

(e) how many vacancies earmarked for these sections remain unfilled for more than two years?