No. of Printed Pages : 4 180762/170762/120762
Roll No. ..... /030762

6th Sem / Civil, Brick Tech. (Elective), Constr. Mgmt., Civil Engg (Spl Highway Engg)
Subject:- Earthquake Resistant Building Construction

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 The epicentre of an earthquake is the_____
a) Point where P-waves touch the surface
b) Nearest point to the surface from the focus perpendicular to the earth's surface.
c) Point of intersection of P and s wave fronts
d) Antipodal point

Q.2 Which seismic waves cause the most damage during an earthquake?
a) P-waves b) S-waves
c) Surface waves d) Body waves

Q.3 The force required to produce unit deformation is known as _____
a) Flexibility b) Strength
c) Stiffness d) Ductility

Q.4 When there is a constant amplitude over every cycle of vibration, then the body is said to have_____
a) Free vibration b) Forced vibration
c) Damped vibration d) Undamped vibration

Q.5 _____ is an essential attribute of an earthquake resistant design of a structure that serves as a shock absorber in a structure and reduces the transmitted to one that is sustainable.
a) Elasticity b) Ductility
c) Plasticity d) All of the above

Q.6 Which is good example of how the ground acts during liquefaction?
a) The ground act like pure water
b) The ground acts like sand
c) The ground act like molasses or honey
d) The ground acts like quicksand

Q.7 _____ analysis is used to obtain design seismic force.
a) Elastic Analysis b) Plastic Analysis
c) Dynamic Analysis d) Both (a) and (b)

Q.8 _____ is a process of enhancing the resistance of damaged or weak structure by appropriate technique of Maintenance and Repair.
a) Repair b) Retrofitting
c) Re-strengthening d) Restoration

Q.9 The National Institute of Disaster Management (NIDM) was established on_____
a) September 23, 2002 b) August 14, 2001
c) October 16, 2003 d) August 14, 2004

Q.10 Who is the chairman of National Disaster Management Authority?
a) President b) Prime Minister
c) Defence Minister d) Home Minister

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 The waves which can pass through solids but fail to propagate through fluids are_____ (S-waves / P waves)

Q.12 More the flexibility of a building _____ is the value of fundamental period 'T' (Lower / Higher)

Q.13 The rectangular building suffers_____ damage during an earthquake as compared with square buildings. (More /Less)

Q.14 _____ of steel due to environmental attack, can result in reduction of area of steel and further load carrying capacity. (Corrosion / Carbonation)

Q.15 As per IS 1893:2002 India is divided into_____ seismic zones. (Five/Four)

Q.16 Inertia forces in buildings act in the_____ direction to earthquake forces. (Opposite/Same)

Q.17 In_____ method, the structure and foundation are separated by bearing or flexible layer. (Base isolation / Shear wall)

Q.18 Fibre Reinforced Plastics (FRP) have_____ tensile strength and ____ weight. (High, Low / Low , High)

Q.19 Protecting and promoting human rights is a core objective of _____ in social development.

Q.20 The longest phase of disaster management is_____ (Mitigation / Recovery)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Differentiate between earthquake magnitude and earthquake intensity.

Q.22 Describe the working of a Seismograph with the help of diagram.

Q.23 Write a short note on "Seismic Zoning Map of India".

Q.24 Describe the ways of non-structural components failure of traditionally built-up constructions in India; due to an earthquake.

Q.25 Describe the "Out-of Plane Failure" as a mode of failure during an earthquake.

Q.26 Enlist the various seismic codes published by Bureau of Indian Standard.

Q.27 Describe the various grades of concrete recommended by IS: 13920-1993 to be provided for construction of buildings to make them as earthquake resistant building.

Q.28 Describe the provisions of providing the "Joints of Columns and Beams" as per IS Code : 13920-1993, to act as an earthquake resistant structural member.

Q.29 Describe the various effects on seismic performance of a building of it is "Irregular in Plan or Shape".

Q.30 Describe the general principles to be followed during the construction of a conventional stone masonry buildings to make them as earthquake resistance buildings.

Q.31 Describe the procedure of repair of cracks developed due to an earthquake, in a residential masonry building.

Q.32 Describe the suitable technique to be used for strengthening the R.C.C. Beams, damaged by an earthquake.

Q.33 Enlist the various rescue equipments required to carry out the rescue operations, for damage control and casulaty management in a residential area consist of high rise buildings.

Q.34 Describe the various phases of "Rescue by Steps" for disaster management.

Q.35 Write a short note on "Psychology of Rescue".

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Write and explain the various causes of earthquakes.

Q.37 With the help of diagram, explain the necessity of providing the seismic bands in a masonry building construction to make it an earthquake resistant building.

Q.38 Explain the purposes and necessity of providing the "Through Stones" in stone masonry walls with the help of a diagram.