

Adichunchanagiri University

PhD Entrance Examination – Jan 2019

Subject: Civil Engineering

Model Question Paper

- *Answer any 20 Questions from 1 –30 (1 Marks each)*
- *Answer any 10 questions from 31- 45 (2 Marks each)*
- *Answer any 5 questions from 46 - 55 (4 Marks each)*

- 1 A ball is projected vertically upwards with a certain velocity. It takes 40 seconds for its upward journey. What is the time taken for its downward journey?
- 2 Where the center of gravity of a circle lies?
- 3 What is the unit of radius of gyration?
- 4 What is the Moment of inertia of a rectangular section having width (b) and depth (d) about an axis passing through its C.G. and parallel to the depth (d)?
- 5 What is the unit of Young's modulus?
- 6 What is the percentage reduction of area in performing tensile test on cast iron?
- 7 Where in the stress-strain curve, the Hook's law is valid?
- 8 What is the bending moment at end supports of a simply supported beam?
- 9 What is meant by Hydraulic depth?
- 10 State Pascal' law.
- 11 1 mm of Hg is equal to, how many mm of water?
- 12 What is the whole circle bearing of a line if its reduced bearing is $N 87^\circ W$?
- 13 ABCD is a rectangular plot of land. If the bearing of the side AB is 75° , what is the bearing of the line DC?
- 14 What is the angle between two plane mirrors of optical square

- 15 What should be the minimum percentage of reinforcement in RCC column?
- 16 How much is the absolute density of OPC in Kg/m³
- 17 What is the maximum value of span/depth ratio permissible in case of simply supported RCC beam?
- 18 Which test is conducted to test hardened concrete of a building?
- 19 What is the ratio of coefficient of uniformity (CV) ?
- 20 What is the diameter of the sieve that is used for finding the liquid limit?
- 21 What is meant by the symbol GC according to IS classification of soil?
- 22 What is the fullform of TMC which is a unit of volume of water?
- 23 What is the value of the coefficient of runoff for impervious areas?
- 24 What is an acquifer?
- 25 Which is the region on the earth most affected by acid rain?
- 26 What is the name of zone of Earth, where alone life exists?
- 27 What is the fullform of EIA?
- 28 Which is the most hazardous gaseous air pollutant for human health?
- 29 What is meant by slederness ratio of a long column?
- 30 Which structure will perform better during earthquake? Statically determinate or indeterminate.
- 31 List the effect of force on a body.
- 32 State Lami's theorem.
- 33 Define point of Contraflexure.
The safe stress for a hollow steel column which carries an axial load of 2100 kN is 125 MN/m². If the external diameter of the column is 30cm, what will be the internal diameter?
- 34
- 35 Explain Archimedes principle.
- 36 What is the radius of the bubble tube if the desired sensitivity of a bubble tube with 2 mm divisions is 30".

- 37 What is the Rankine's deflection angle, for a curve of radius 100m and normal chord 10m?
- 38 How the light-weight concrete is prepared?
- 39 What is meant by workability of concrete?
- 40 What is the MDD for a soil sample having $G_s = 2.7$ and $OMC = 16\%$?
- 41 What is the purpose of providing dead storage in a reservoir?
- 42 What are factors to be considered while computing yield of a Reservoir?
- 43 What are the factors affecting per capita demand of water?
- 44 Enumerate how the acid rain can be reduced?
- 45 What is the difference between deflection and deformation? Explain
- 46 What is the force applied on a body of mass 100 kg to produce an acceleration of 5 m/s^2 ?
- 47 Two sections in a bar of length 10cm and 20cm respectively are pulled axially. It causes an elongation of 0.2mm and 0.4mm respectively in each section. What will be the resultant strain in the bar?
- 48 Enumerate the factors affecting the Manning's rugosity coefficient.
- 49 What is the purpose of measuring the horizontal angle by Repetition method.
- 50 Why Reciprocal Levelling is adopted to find the true difference in level between two stations.
- 51 What are the steps involved in the concreting process, Explain briefly?
- 52 What are the properties of the soil is improved by compacting it?
- 53 If the runoff from a drainage basin of 4320 sq km is estimated as 10000 cumec-days , What will be the depth of runoff?
- 54 Enumerate the Impacts of Thermal power plants.
- 55 A load of 1960 N is raised by a steel wire. What should be the diameter of the wire if the stress should not exceed 100 N/mm^2 ?