



# PUNJAB TECHNICAL UNIVERSITY JALANDHAR

**Max. Marks: 90**

**Time: 90 Mins.**

## Entrance Test for Enrollment in Ph.D. Programme

**Important Instructions**

- *Fill all the information in various columns, in capital letters, with blue/black ball point pen.*
- *Use of calculators is not allowed. Use Blue/Black ball point pen for attempting the questions.*
- *All questions are compulsory. No negative marking for wrong answers.*
- *To attempt a question, make a tick mark (✓) at the right option/answer.*
- *Each question has only one right answer.*
- *Questions attempted with two or more options/answers will not be evaluated.*

Subject (*Engg./Arch./Pharm./Mgmt./Sciences*) **ARCHITECTURE**.....

Discipline / Branch **ARCHITECTURE**.....

Name .....

Father's Name .....

Roll No. .... Date : **10-07-2010**.....

Signature of Candidate .....

Signature of Invigilator .....

- |  |  |
|--|--|
| <p>1. Which of the following is NOT a Platonic solid :</p> <p>a) cube</p> <p>b) tetrahedron</p> <p>c) sphere</p> <p>d) octahedron</p>                              | <p>2. “Less is a Bore” maxim coined by :</p> <p>a) Mies Van der Rohe</p> <p>b) Robert Venturi</p> <p>c) James Sterling</p> <p>d) Le-Corbusier</p>  |
| <p>3. The book “Towards a New Architecture” is written by:</p> <p>a) Le-Corbusier</p> <p>b) Frank O Gehry</p> <p>c) Eero Saarinen</p> <p>d) Frank Lloyd Wright</p> | <p>4. LEED is an accepted rating system for environmental performance of a building LEED stands for :</p> <p>a) Low Energy and Efficient Distribution</p> <p>b) Low Energy Exchange Design</p> <p>c) Light Energy Efficient Department</p> <p>d) Leadership in Energy and Environmental Design</p> |
| <p>5. An architect of the Chicago School movement is :</p> <p>a) Louis Sullivan</p> <p>b) Victor Horta</p> <p>c) William Morris</p> <p>d) Gerrit Reitveld</p>      | <p>6. In Byzantine architecture, the device used for creating a perfect circular dome over a square plan is called:</p> <p>a) mehrab</p> <p>b) pendentive</p> <p>c) squinch</p> <p>d) scroll</p>   |
| <p>7. Kansai Airport is designed by:</p> <p>a) Norman Foster</p> <p>b) Richard Meier</p> <p>c) Renzo Piano</p> <p>d) Eero Saarinen</p>                             | <p>8. Crystal Palace -1851 is designed by:</p> <p>a) Joseph Paxton</p> <p>b) Henry Van de Velde</p> <p>c) Henry Hobson Richardson</p> <p>d) John Nash</p>  |

9. The rule for generating a Fibonacci series is:
- $F_i = F_{i-1} + F_{i-2}$  for  $i > 1$ ; given  $F_1$  and  $F_0$
  - $F_i = F_{i-1} + 1$  for  $i > 1$ ; given  $F_1$  and  $F_0$
  - $F_i = F_{i-1} + 2$  for  $i > 1$ ; given  $F_1$  and  $F_0$
  - $F_i = (F_{i-1})^2$  for  $i > 1$ ; given  $F_1$  and  $F_0$
10. Which Roman author wrote which became the standard text on classical architecture:
- Isidore of Miletus
  - Marcus Agrippa
  - Anthemius of Tralles
  - Vitruvius
11. Architect Michel Graves is associated with:
- Post-Modernism
  - De Constructivism
  - Art Nouveau
  - Futurism
12. "Seams" are types of :
- edges
  - nodes
  - districts
  - landmarks
13. Vidyadhar Bhattacharya is associated with the planning of:
- Kolkata
  - Jaipur
  - Allahabad
  - Gandhi Nagar
14. A person standing at a point in a public open space is observing a facade of height 20 metres from a distance of 40 meters. The degree of enclosure experienced by the person is :
- Minimal enclosure
  - Threshold of enclosure
  - Full enclosure
  - Loss of enclosure
15. According to road classification of Chandigarh, the roads bisecting the sectors with shopping complexes located along their southern edge are:
- V-3
  - V-4
  - V-5
  - None of the above
16. In electrical transmission and distribution system in India, Low Tension Cable is manufactured to Voltage upto:
- 220 Volts
  - 440 Volts
  - 1000 Volts
  - 11000 Volts
17. In electrical terms, power factor is always:
- between one and two
  - between two and four
  - less than one
  - none of the above
18. Movement, spatial invention, drama and freedom of detail are the characteristic features of:
- Gothic Architecture
  - Baroque Architecture
  - Egyptian Architecture
  - Roman Architecture
19. Who built the Agra Fort:
- Humayun
  - Jehangir
  - Akbar
  - Shah Jahan
20. Which of the following is the Pritzker Architecture Prize Laureate:
- Zaha Hadid
  - Charles Moore
  - Charles Correa
  - Rob Krier

21. The invention of Linear Perspective is done by :
- Michelangelo
  - Filippo Brunelleschi
  - Gian Lorenzo Bernini
  - Andrea Palladio
22. If a city is built in the form of a large circle with radial corridors of intense development emanating from the centre, the shape of the city is called:
- Star
  - Radiocentric
  - Ring
  - Satellite
23. Torrent Research Center, Ahmedabad is known for the effective use of:
- Passive Downdraught Evaporative cooling system
  - Intelligent Building systems
  - Advanced Security systems
  - Cost effective construction technology
24. The pattern Language theory is propounded by :
- Christopher Alexander
  - Patrick Geddes
  - John Ruskin
  - Charles Jencks
25. The strength of concrete increases with:
- increase in water cement ratio
  - decrease in water cement ratio
  - decrease in cement aggregate ratio
  - increase of workability
26. Function of Air Handling Unit in a building is to:
- Purify and re-circulate the cool air
  - Collect the stale air from the room and throw it outside the building
  - Collect the stale air from the room and bring it in contact with cooling tower
  - Act as a storage device for chilled water
27. The book "Space Time And Architecture" is written by:
- Sigfried Giedion
  - William Curtis
  - Keith Critchlow
  - Talbot Hamlin
28. Geodesic Dome is associated with:
- P.L. Nervi
  - Richard Roger
  - Felix Candela
  - Buckminster Fuller
29. The components of Imageability as given by Kevin Lynch are:
- identity, structure, meaning
  - paths, nodes, edges, landmarks, districts
  - urban mass, circulation, urban and open space activities pattern
  - all the above
30. Depletion of Ozone layer in the outer atmosphere is likely to increase the incidence of :
- skin cancer
  - lung cancer
  - bronchitis
  - none of them
31. According to Ken Yeang, the vital considerations for Bioclimatic skyscraper design are:
- variability in facade and building performance in response to climate and location
  - landscaping of greenery as part of the entire building facade
  - material selection based on ecologically sound principles
  - all the above
32. According to Ancient Indian Treatise, the city/village layout in the shape of bow, semi-circular or semi-elliptical, suitable for site fronting river or sea shore is called:
- Dandaka plan
  - Sarvatobhadra plan
  - Padmaka plan
  - Karmuka plan

33. The Indian Institute of Forest Management Bhopal, is designed by:
- Charles Correa
  - Raj Rewal
  - Anant Raje
  - B.V. Doshi
34. Building having dome with an elliptical base:
- Pisa Cathedral
  - Jami Masjid Delhi
  - Pantheon
  - St. Paul Cathedral
35. The minimum thickness of a wall where Single Flemish bond can be used is:
- half-brick thick
  - one-brick thick
  - one and a half brick thick
  - two-brick thick
36. Ventilating columns are placed along a sewer line at intervals of about:
- 30m – 50m
  - 75m -100m
  - 150m- 300m
  - 500m -750m
37. The detention period in a septic tank is of the order of:
- 2-6 hours
  - 4-8 hours
  - 12-36 hours
  - 2- 4 days
38. Causes of failure of masonry foundations are:
- unequal settlement of the sub soil, unequal distribution of the weight of the structure on the foundations
  - horizontal movement of the earth adjoining the structure, atmosphere action
  - transpiration of trees and shrubs around
  - all the above
39. Frank Llyod Wright’s Usonian houses are:
- small one storey structures with open carports and with strong interrelationship between interior and exterior spaces.
  - multistoreyed apartment block with interplay of different levels
  - two-storey Villas with pilotis on the ground and living areas and terrace garden on upper floors
  - none of the above
40. The city of Brasilia is planned by:
- Lucio Costa
  - Frank Llyod Wright
  - C.A. Doxiadis
  - Le-Corbusier
41. An ordinary rain will generally be:
- slightly acidic
  - slightly alkaline
  - neither acidic nor alkaline
  - strongly acidic or alkaline
42. On the colour wheel the combination of Red-Green or Violet-Yellow can be best described as:
- analogous
  - supplementary
  - complementary
  - neutral
43. The book “City Planning According to Artistic Principles” is written by:
- Camillo Sitte
  - Lewis Mumford
  - Frank Lloyd Wright
  - Patrick Geddes
44. Katsura Palace, Kyoto is constructed of:
- light-wood timber frame with triangular trusses and stone walls
  - stone walls and triangular trusses for roof
  - mud walls and timber frame with triangular trusses for roof
  - none of the above

45. Hard steels have carbon content :
- Less than 0.15 percent
  - Less than 0.45 percent
  - Over 0.5 percent
  - Over 1.5 percent
47. Sagrada Familia Church, Barcelona is designed by:
- Henry Hobson Richardson
  - Antoni Gaudi
  - Peter Behren
  - Alvar Aalto
49. Explanatory research attempts to :
- clarify why and how there is a relationship between two aspects of a situation or phenomenon
  - describe systematically a situation, problem, phenomenon or describes attitudes towards an issue
  - discover or establish the existence of a relationship / association / interdependence between two or more aspects of a situation
  - all of the above
51. In the context of Green Technologies, BIPV stands for:
- Building Integrated Ply Veneers
  - Building Integrated Photo Voltaics
  - Building Integrated Proper Ventilation
  - None of the above
53. Pompidou Centre, Paris is an example of:
- Intelligent Building
  - Energy Efficient Building
  - Deconstructivist Architecture
  - Hi-Tech Architecture
55. The art movement CUBISM was in the first decade of 20<sup>th</sup> century pioneered by:
- Le-Corbusier
  - Diego Rivera
  - Antonio Sant Elia
  - Pablo Picasso
57. The minimum and maximum diameter of sewers, generally adopted in the designs may be:
- 15 cm to 100 cm
  - 25 cm to 450 cm
  - 60 cm to 300 cm
  - 15 cm to 300 cm
46. The vertical depth through which wet cement concrete subsides from its standard moulded height when tested by the standard method is called:
- Slump
  - Workability
  - Setting
  - Rodding
48. "Spanish Steps" are located in:
- Barcelona
  - London
  - Paris
  - Rome
50. Ziggurats are found in:
- Roman Architecture
  - Egyptian Architecture
  - Assyrian Architecture
  - Greek Architecture
52. GRIHA is the green building design evaluation system given by:
- Tata Energy Research Institute
  - Bureau of Energy Efficiency
  - Ministry of Urban Development
  - Development Alternatives
54. The total height of TAIPEI 101 tower, Taiwan is:
- approx 510 m
  - approx 425 m
  - approx 413 m
  - approx 580 m
56. The flow velocity in a sewer DOES NOT depend on:
- its grade
  - its length
  - its hydraulic mean depth
  - its roughness
58. For the design of sewers in India, the percentage of sewage discharge is assumed as:
- 25-30% of water supplied from water works
  - 75-80% of water supplied from water works
  - 50% of water supplied from water works
  - 100% of water supplied from water works

59. The gas which is generally found present in sewers is:
- H<sub>2</sub>S
  - CO<sub>2</sub>
  - CH<sub>4</sub>
  - all of these
60. The primary air pollutant, which is formed due to incomplete combustion of organic matter is:
- Methane
  - Sulphur dioxide
  - Ozone
  - Carbon monoxide
61. The polluting gas, which is primarily responsible for causing the greenhouse effect and global warming is:
- SO<sub>2</sub>
  - CO<sub>2</sub>
  - CO
  - H<sub>2</sub>S
62. The valve which allows flow of water only in one direction is:
- reflux valve
  - gate valve
  - sluice valve
  - air-relief valve
63. "Wholesome water" is the one which does not contain:
- pathogenic bacteria
  - suspended matter in quantities harmful to man
  - dissolved matter in quantities harmful to man
  - all the above
64. The treatments which are generally given to treat raw water supplies, follow the sequence:
- screening, sedimentation, disinfection, filtration
  - screening, sedimentation, filtration disinfection
  - screening, sedimentation, disinfection, aeration
  - screening, sedimentation, coagulation, filtration, disinfection
65. Disinfection of water helps in:
- removing turbidity
  - removing hardness
  - killing pathogenic bacteria
  - complete sterilization
66. Manholes are generally located:
- at all changes of direction of sewer
  - at all changes of gradient of sewer
  - at all junctions of different sewers
  - (d) all the above
67. Choose the correct value of allowable compressive stress in case of axially loaded steel columns ( $f_y$  = yield stress of steel) :
- 0.40  $f_y$
  - 0.75  $f_y$
  - 0.66  $f_y$
  - 1.0  $f_y$
68. What is the value of permissible deflection in case of simply supported beams subjected to U.D.L:
- $\frac{5WL^4}{384EI}$
  - $\frac{Span}{325}$
  - $\frac{WL^2}{8}$
  - $\frac{WL^3}{48EI}$
69. In fibre reinforced concrete different kind of fibres are used to increase the:
- Compressive strength of concrete
  - Tensile strength of concrete
  - Shear strength of concrete
  - All the above
70. In tall structures shear will is used to take:
- imposed loads
  - lateral loads
  - static loads
  - all the above

71. The effective length of axially loaded RCC columns with both ends hinged is given by:
- 2 L
  - 1.5 L
  - 0.85 L
  - 1.0 L
72. Choose the IS code used for the design of earthquake resistant RC structure :
- IS:456
  - IS: 800
  - IS: 1893
  - IS:13920
73. The Eleventh Five Year Plan has started from :.....
- April 1, 2004
  - April 1, 2006
  - April 1, 2005
  - April 1, 2007
74. Which are the methods used to measure an average:
- Range, Standard Deviation
  - Correlation, Regression
  - Mean, Median, Mode
  - Test of Hypothesis
75. One square mile is equal to .....:
- 640 acres
  - 600 acres
  - 650 acres
  - None of These
76. Which of the following countries is the first in the world to propose a carbon tax for its people to address global warming:
- New Zealand
  - Japan
  - Australia
  - Germany
77. BRTS is a ..... based transport service. :
- Bus
  - Rail
  - Water
  - Air
78. Theodolite is an instrument to measure .....:
- horizontal and vertical angles
  - height of very distant objects
  - heat radiation
  - curvature of spherical objects
79. BOOT stands for .....:
- 'Bombay Orbit Operations Treaty'
  - 'Build, Open, Operate & Transport'
  - 'Built, Own, Operate & Transfer'
  - None of them
80. Which is the most recent inclusion in the UNESCO's heritage in India:
- Kalka- Shimla Railway Line
  - Red Fort, Delhi
  - Golden Temple, Amritsar
  - None of Them
81. A nautical mile is equal to .....:
- 1005 Metres
  - 1250 Metres
  - 1575 Metres
  - 1825 Metres
82. One cubic meter is equal to ..... cubic yards:
- 1.51
  - 1.21
  - 1.31
  - 1.36

83. Which of the following factors is responsible for variation in the flora and fauna in different parts of earth:
- change in Biosphere
  - change in Hydrosphere
  - change in Physical Environment
  - change in Atmosphere
84. Identify the UNESCO approved World Heritage site from the following:
- Somnath Temple
  - Salarjung Museum
  - Khajuraho Group of Temples
  - Chaar Bagh Railway Station
85. How much is the proposed total financial support from GOI under Jawaharlal Nehru National Urban Renewal Mission:
- Rs. 50000 Crore
  - Rs. 155000 Crore
  - Rs. 5000 Crore
  - None of Them
86. World Bank has classified the economies on the basis of .....
- ownership of resources
  - per capita income
  - development
  - all the them
87. Who is the Chairman of Planning Commission in India:
- President
  - Prime Minister
  - Governor of Reserve Bank of India
  - Finance Minister
88. Which foreign influence is seen in the rock-cut architecture of India:
- Arabic
  - Persian
  - Indo-European
  - Greek
89. Who has classified towns into six categories:
- Census of India
  - Delhi Development Authority
  - National Institute of Urban Affairs
  - Ministry of Urban Development
90. 100 Hectares equals .....
- ten square kilometres
  - hundred square kilometres
  - one square kilometres
  - none of these