ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY

School of Civil Engineering and Architecture

Department of Architecture

Target Group: 5th year (Architecture)
Exam Type: Model Exit Exam
Semester: II
Academic Year: 2022/2023
Max. Mark: xxx%
Time allowed: xxx hours
Date: xxx, 2023

Instructions

- The exam is closed book
- Write your name, Id No. and section
- Attempt all questions neatly and clearly within given time,
- Using mobile is forbidden,
- Cheating will result disqualification of your result,
- Follow the instructions given strictly.

NAME:

ID No:

Section:

For Evaluation Only

Part-I [xxx marks]

GOOD LUCK

Multiple Choice Question: Circle the best answer for each question

1) Which of the following statements is incorrect about analyses of spatial qualities that can support architects in reasoning about the form of a configuration, and help them predict the consequences of a design?
    A. Degree of enclosure is basically determined by the configuration of its defining elements and the pattern of its openings.
    B. Static shapes are used to create flowing, interconnected and directional expression of space.
    C. A monumental scaled interior space creates imposing feeling on observers and users.
    D. Shallow spaces tend to create a compressed, ambiguous and small feeling.
2) Architects perform various services to complete a project successfully. Which service defines and record precisely the project needs such as design objectives, creation of space requirements, linkages between spaces, flexibility and expandability.
    A. Concept development
    B. Schedule
    C. Program
    D. Code analysis.
3) What is the purpose of regulating lines in proportioning system?
    A. To indicate the common alignment of elements
    B. To indicate the proportion of elements
    C. To indicate the verification of order or rhythm
    D. To indicate the ratio of two rectangles
4) Which statement concerning proportioning systems and theories is correct?
    A. Based on the Greek mathematical theory of proportions, Palladio proportioning techniques calculated the right height of a room.
    B. Le Corbusier's Modular system is based on ken system.
    C. The dimensions and proportions of the human body are measured in Renaissance proportion theories.
    D. Proportion technically denotes the direct size of an object.

5) Which of the following is NOT a basic principle of architectural design?
    A. Balance
    B. Proportion
    C. Emphasis
    D. Form and Space
6) What is the purpose of a design brief?
    A. To provide a detailed description of the project requirements
    B. To outline the project budget
    C. To provide a project timeline
    D. To list the names of everyone involved in the project
7) What is the purpose of a design style guide?
    A. To ensure consistency in design
    B. To provide project timelines
    C. To list the project requirements
    D. To outline the project budget
8) What is the purpose of a design critique?
    A. To provide feedback on the design
    B. To discuss the design with the client
    C. To finalize the project budget
    D. To create a project timeline
9) What is the purpose of a form study in design?
    A. To explore different form composition techniques
    B. To test the functionality of the design
    C. To finalize the color scheme of the design
    D. To create a prototype of the design
    E. None of the above
10) Which Gestalt principle refers to the tendency to see objects as belonging together if they are close to each other?
    A. Proximity
    B. Closure
    C. Continuity
    D. Figure/ground

11) Three colors evenly spaced on the color wheel. Example red, yellow, and blue.
    A. Analogous
    B. Tertiary
    C. Triad
    D. Monochromatic
12) Elements of art produced when a wavelength of light strikes an object and reflects back to the eyes.
    A. Texture
    B. Color
    C. Value
    D. Spectrum
13) Principle of design referring to the way the elements are arranged to create a feeling of stability in a work-parts of equal visual weight.
    A. Proportion
    B. Balance
    C. Variety
    D. Emphasis
14) Make of only a single color or hue and its tints and shades.
    A. Monochromatic
    B. Color
    C. Analogous
    D. Complementary
15) A visual tempo or beat – often described as alternating, regular, flowing, progressive or jazzy.
    A. Rhythm
    B. Unity
    C. Movement
    D. Continuity
16) A current trend in architectural design that combines traditional and contemporary influences into designs for truly modern structures is called_____ architecture.
    A. Post modern
    B. Classic
    C. Revival
    D. Art deco

17) A half bath contains which of the following?

A. Sink and shower
B. Shower and toilet
C. Sink and toilet
D. Shower, toilet, and sink

18) Which of the following is an element in the process of textile industry working flow?

A. Embroidery
B. Stunning
C. Evisceration
D. Epoxy

19) Which of the following is the first task of an architect when designing industrial warehouses?

A. Understand the purpose of the warehouse
B. Understand the work flow
C. Size of the Equipment
D. All of the above

20) What is the importance of using Mechanical system in the textile industry?

A. To maintain external air quality
B. Adjust external temperature
C. Regulate internal air quality
D. All of the above

21) What is the importance of integrating building services?

A. Better lighting
B. Enhanced acoustic
C. Water, drainage, and plumbing
D. All of the above

22) Which one of the following is not part of MEP design?

A. Power supply distribution \
B. Waste removal
C. Cooling system for the building
D. None

23) What line defines the site boundaries on a site plan?

A. Border line
B. Bounder line
C. Property line
D. Contour line

24) At what stage should you consider Programming?

A. During the Pre-design Stage
B. Anytime during the Design Development Stage
C. During Contract Documentation
D. During Schematic Design Stage

25) Which one is not a private open spaces in the context of apartment building design that enhance the amenity and indoor/outdoor lifestyle of residents?

A. Balcony
B. Courtyard
C. Terrace
D. Living space

26) Factors that determine the most appropriate form and massing for a building design.

A. Site topography
B. Sun orientation and prevailing wind
C. Existing structures on adjacent sites and views
D. All of the above

27) Which one is the appropriate aim of the setback in building design?

A. Provide access to light, air and outlook for neighboring properties and future buildings
B. Provide for adequate privacy between neighboring buildings
C. Retain or create a rhythm or pattern of spaces between buildings that define and add character to the streetscape
D. All of the above

28) To achieve adequate natural ventilation and daylight, apartment design must address

A. The orientation of the building
B. The Configuration of the apartments
C. The external building envelope
D. All of the above

29) The functions of residential building layouts are categorized into three zones that maintain a particular relation, those are

A. Public, semipublic, and private
B. Living room, dining room, and kitchen
C. Indoor spaces, outdoor spaces, and communal spaces
D. None of the above

30) One of the following is importance of following standard building codes?

A. To create safe and sound structure for people to live and work in
B. Used to develop plans that are compliant with code while to meeting the need of the client.
C. It provide guidance on which materials and techniques should be used to best achieve
D. All of the above

31) _____ is essential in order to come up with innovative designs that meet the needs of clients while also being aesthetically pleasing.

A. Qualities of Architectural Design
B. Creativity
C. Design Concept
D. Selection of appropriate building materials.

32) Composing are search, case study, develop concept, engage in imagination and creating thinking at space deals with_____

A. Main building inspection
B. Ensure the durability at the building
C. Main essential strategy for best final output of building design
D. Imaginary process of Architectural design

33) Integrated Architectural design approach

A. Improve environmental performance of the buildings.
B. Increase construction problem.
C. Increase cost of construction.
D. Reduce energy utilization.

34) Which one of the following is the pre-design phase of integrated design process?

A. Analysis of site potential inclining wind, sun, landscape and urban development plans.
B. Develop building concept s in to specific architectural and technical solutions.
C. Design documents are created
D. All of the above

35) What is the purpose of conceptual design phase?

A. To link the architectural ideas and concepts to principles of construction, energy and environmental building concepts, indoor environmental concepts as well as the functional demands.
B. To develop different conceptual design solutions and to evaluate their relative merits, as well as the architectural qualities, against the goals set out in the building design brief.
C. Have integrated building concepts
D. All of the above

36) Utilize renewable energy score is best described by:-

A. Optimize building form and zoning
B. Provide optimal use of passive solar heating, day light and natural ventilation.
C. Advanced façade with optimum window orientation.
D. Apply efficient appliance to reduce heat load.

37) Which one of the following building envelop factor is important to develop successful energy and environmental building concept?

A. Orientation
B. Built form
C. Materials
D. All of the above

38) Detail design phase in integrated architectural design include:-

A. The establishment of the design documents including drawings and specifications.
B. Develop integrated architectural concept
C. Evaluate the forms of different architectural concept s
D. Evaluate merits of different conceptual design solutions

39) Which of the following is NOT a key principle of urban design?

A. The design should be responsive to the needs of the community.
B. The design should be sustainable and environmentally friendly.
C. The design should be aesthetically pleasing.
D. The design should be affordable.

40) Which of the following is NOT a type of urban design?

A. Planning
B. Zoning
C. Transportation
D. Public space

41) Which of the following is NOT a way to improve urban space?

A. Increased density
B. Improved public transportation.
C. More green space.
D. Better crime prevention

42) Which of the following is an example of a sustainable urban planning practice?

A. Building more roads to accommodate traffic
B. To control population growth
C. Redeveloping brownfields
D. Increasing reliance on cars

43) Which of the following is NOT a factor that is considered when setting building height regulations?

A. The location of the building
B. The type of building
C. The size of the building
D. The amount of sunlight that reaches the ground

44) The best way of designing a ramp for car parking entrance is _____.

A. 25%
B. 18 %
C. 30 %
D. 6%

45) What is the primary purpose of a capstone project in architecture?

A. To demonstrate technical drawing skills
B. To showcase design proficiency
C. To explore sustainable building practices
D. To study historical architectural styles

46) In a capstone project, what does the term "site analysis" refer to?

A. Evaluating the environmental impact of the project
B. Assessing the historical significance of the project location
C. Studying the context and characteristics of the project site
D. All of the above

47) How does a capstone project differ from a regular studio project in architecture?

A. It focuses on theoretical concepts rather than practical design.
B. It involves a larger team of students working collaboratively.
C. It requires more extensive research and documentation.
D. It is typically shorter in duration and less comprehensive.

48) _____ is a research type involving events that occurred in the remote or resent past

A. Descriptive research
B. Experimental research
C. Historical research
D. Applied research

49) _____ is a preliminary document that explains the purpose of research.

A. Concept paper
B. Title/ topic of paper
C. Analysis of paper
D. None of the above

50) Which one of the following is not from the main component of research proposal?

A. Literature review
B. Problem statement
C. Methodology
D. Result and discussion

51) The scope of a given architectural research shouldn't show:

A. Specific location
B. Specific area
C. Time schedule of the research proposal
D. Relevance of the study area

52) What is the purpose of an architecture capstone thesis?

A. To demonstrate mastery of the skills and knowledge learned in the architecture program.
B. To provide students with the opportunity to apply their skills to a real-world problem.
C. To help students develop their research and writing skills.
D. All of the above

53) The results and discussion section of an architecture thesis should:

A. Summarize the findings of the research.
B. Discuss the implications of the findings.
C. Both summarize the findings and discuss the implications of the findings.
D. None of the above

54) Which of the following is NOT a common methodology used in architecture?

A. BIM
B. Lean
C. Agile
D. Waterfall

55) The problem statement of architecture is:

A. A statement of the problem that the architecture is intended to solve.
B. A description of the requirements that the architecture must meet.
C. Both a statement of the problem and a description of the requirements.
D. None of the above.

56) What is the purpose of the introduction section of an architectural thesis?

A. To introduce the topic of the thesis.
B. To provide background information on the topic.
C. To state the thesis statement.
D. All of the above.

57) What should not be included in the abstract of a thesis proposal?

A. The title of the thesis proposal.
B. Personal opinions or beliefs
C. The research question or problem statement.
D. The methodology that will be used to answer the research question.

58) Which one from the following is the primary components of OPC

A. Calcium
B. Silica
C. Iron
D. All of the above

59) Fine aggregates are smaller than _____mm.

A. 2
B. 4.75
C. 17.5
D. 9.5

60) The purpose of compaction is_____

A. The process which expels entrapped air from fresh concrete
B. To increase the density of concrete
C. To enhance the bond with reinforcement
D. All of the above

61) Pick a type of rock that formed by solidifying of Magma at the surface of the earth (Extrusive)

A. Sedimentary
B. Metamorphic
C. Igneous
D. All of the above

62) Which of the following is NOT a common construction material?

A. Concrete
B. Steel
C. Wood
D. Glass

63) Pile foundations are suitable for

A. Water logged soils
B. Soft rocks
C. Compact soils
D. Multi-storied buildings

64) Which one of the following factors is considered for the orientation of buildings?

A. The direction of the prevailing winds in the area
B. The exposure of the walls and roof of the buildings to the rays of sun
C. The extent up to which the sunrays penetrate with the verandah
D. All the above

65) A wall constructed to resist the pressure of an earth filling, is called

A. Retaining wall
B. Breast wall
C. Buttress
D. Parapet wall

66) The arrangement made to support an unsafe structure temporarily, is known as

A. Shoring
B. Scaffolding
C. Underpinning
D. Jacking

67) For providing a raft foundation, the following activities are involved

1. Ramming the foundation bed
2. Excavation of the soil up to required depth
3. Laying the reinforcement over the foundation bed
4. Curing the cement concrete placed over reinforcement
5. Pouring the cement concrete over the reinforcement

The correct sequence is

A. 1, 2, 3, 4, 5
B. 5, 4, 3, 2, 1
C. 2, 1, 3, 5, 4
D. 3, 2, 5, 1, 4

68) When a bar of length L, width b and thickness t is subjected to a push of P, its

A. Length, width and thickness increases
B. Length, width and thickness decreases
C. Length increases, width and thickness decreases
D. Length decreases, width and thickness increases

69) Select true statement from the following choices

A. Circular tubes are more efficient than solid bars in resisting torsional loads
B. The neutral axis of the cross-section of a beam is that axis at which the bending stress is maximum
C. At the neutral axis of the cross-section of a beam shear stress is zero
D. When bending moment is zero at a point, shear force is maximum at that point

70) As an Architectural Engineer to fix the diameter of the material during design, if a bar is stretched by 50 *kN* force & develops 100 *MPa* tensile stress, what will be its diameter?

A. 23.49mm
B. 25.23mm
C. 35.48mm
D. 21.25mm

71) The principal plane occurs at ____ degree away from plane of maximum shear stress

A. 90°
B. 45°
C. 180°
D. 60°

72) For a truss to be in stable minimum how many members are required

A. 3
B. 2
C. 4
D. All of these

73) In a beam, at the point of contra flexure moment will be

A. Maximum
B. Minimum
C. Zero
D. None of these

74) For an L shaped section, the centroid lies at

A. On vertical leg
B. On horizontal leg
C. Outside the L
D. All of these

75) Moment of inertia for semicircular section about centroidal axis are

A. $I_{XX} = 0.1098r^4 \ \ and \ I_{YY} = \frac{\pi r^4}{8}$
B. $I_{YY} = 0.1098r^4 \ \ and \ I_{XX} = \frac{\pi r^4}{8}$
C. $I_{XX} = 1.098\, r^4 \ \ and \ I_{XX} = \frac{\pi r^4}{16}$
D. $I_{XX} = \frac{\pi r^4}{4} \ \ and \ I_{XX} = \frac{\pi r^4}{16}$

76) Who is the modern architect that made abstract topographical studies for many projects, intervening with fluid, flexible and expressive works that evoke the dynamism of contemporary urban life?

A. Z. Hadid
B. N. Foster
C. S. Calatrava
D. K. Linch

77) Who developed in 1948 the system based on human measurements the double unit, the Fibonacci numbers (serie) and golden ration(Sezione aurea), called the “Modular”?

A. F.L.Wright
B. Mies van der Rohe
C. Le Corbusier
D. W.Gropius

78) Which of the following is NOT a major component of the theory of architecture?

A. Function
B. Form
C. Space
D. Color

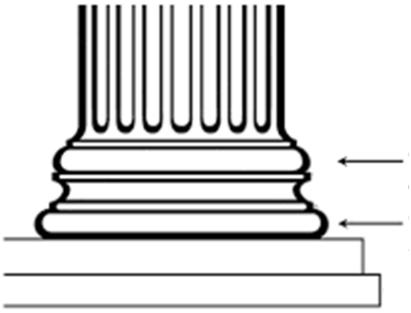
79) _____ Is architectural style of medieval Europe combinations Roman & Byzantine Architecture basically roman in style?

A. Roman Architecture
B. Renaissance.
C. Romanesque architecture
D. Romanbyzantine architecture

80) Who was the very influential architect of renaissance era?

A. Raphael (rafaello sanzio)
B. Filippo brunelleschi
C. Carlo maderna
D. Donato Bramante

81) A large convex melding found principally at the base of a column is called _____?



A. Rise
B. Plinth
C. Fluting
D. Torus

82) The third stage in the cultural evolution of man; where cutting tools and weapons were mainly made of iron or steel.

A. Paleolithic
B. Iron Ages
C. Bronze Age
D. Neolithic

83) What do you call a sculpted female figure serving as an Architectural support taking the place of a column or pillar supporting an entablature on her head as in figure below?



A. Gargoyle
B. Caryatid
C. Abacus
D. Echinus

84) One of the following is not found in the palace complex of Gondar?

A. Atse Fasiledes castle
B. The Library
C. Atse Yohannes IV castle
D. Atse Iyasu castle

85) One of the following churches is known for its one of a kind ceiling fresco (painting) style in Ethiopia.

A. Tsion Maryam
B. Bete Mariam
C. Debrebirhan Selassie
D. Abune yemata Guh

86) Which one is not true about Harar?

A. A walled city of stone houses
B. Narrow lanes between houses
C. Inspired by Gonderian architecture
D. Influenced by Indian style

87) Which of the following is not the major characteristic of Gurage vernacular houses?

A. Wood and mud wall
B. Straw roof
C. Central fire place
D. Bamboo central pillar

88) The process in which an organization's leaders define their vision for the future and identify their organization's goals and objectives is known as.

A. Management
B. Strategic planning
C. Administration
D. Objectives

89) According to the UIA (the international union of Architects) and the Association of Ethiopian Architects (AEA), the designation “architect” is denied to by law or custom to a person who has not qualifications.

A. Academic
B. Professional
C. Legal and ethical
D. All of the above

90) Professional protection against lost or other financial Burden against liability for loss or damage resulting from certain circumstances is known by:

A. Bid Bond
B. Indemnity
C. Advance Payment
D. Performance Bond

91) Selecting the appropriate project delivery system is the client’s responsibility. What conditions must investigate to choice when a client needs a quality product?

A. Best references for previous works
B. Least price
C. Companies station (head office address)
D. Location of the project

92) Given data

1.1 Material prices:

- Price of HCB = 15Birr/Pcs.
- Sand: One Sino truck ($16M^3$ capacity) = 25,000.00Birr
- Price of cement = 1650/Quintals

1.2 Labor cost

- $180Br/M^2$

Assume:

- ✓ $0.20M^3$ mortar cover $100M^2$ HCB work
- ✓ Mortar ratio (1:4)
- ✓ Neglect water and tools cost
- ✓ Consider 10% overhead and 15% profit
- ✓ Take dry volume of mortar = 1.4
- ✓ Consider 4% wastage factor for HCB

Required: Cost of 200 M^2 of HCB work

A. 42,340Br.
B. 78,340Br.
C. 97,925Br.
D. None

93) Suppose you are assigned to evaluate a construction bid. While you are evaluating the unit price of a schedule some items found unreasonably high. Where or how do you check those high amounts?

A. By considering Direct cost
B. Proportion amount of overhead cost
C. Proportion amount of profit percentage
D. All of the above

94) Which one of the following describe in depth about lump sum contract type?

A. It is beneficial to the contractor while scope variation is high
B. It is desirable type when the project scope is difficult to know prior of project start.
C. Measurement of each item is important to settle payment
D. None of the above

95) The primary concept of work triangle in a kitchen is based on:

A. Privacey
B. Proximity
C. Hygine
D. Safety

96) Which of the below doors is generally used in residential and office buildings?

A. Flush door
B. Rotating door
C. Louvered door
D. Hinged door

97) Which of the following system supply out-side fresh air into the building

A. Ventilation System

B. Air-condition System

C. System of Adaptation

D. None

98) When heat exchange is taken place from in-ward to out-ward in a built environment (building). Such heat exchange leads to building.

A. Heat-gain

B. Heat-loss

C. At normal Condition

D. Thermal Damping

99) A building's west-side stonewall is about 22.5cm thick and it was finished with 15mm thick cement plaster on the outside and 12.5mm thick on the insides. The thermal conductivity of cement plaster, stone wall, and lime plaster is 81.8 m2 K/W, 4 m2 K/W, , and 0.7 m2 K/W. The length and height of the stonewall are about 3.75m x 2.87m. The inside temperature is 25 0C and the outside temperature is 16 0C. Calculate the heat exchange of the stonewall.

A. Rate of Heat Flow (Q) = 12,657.5 KW

B. Rate of Heat Flow (Q) = -12,657.5 KW

C. Rate of Heat Flow (Q) = 11,856.35 KW

D. Rate of Heat Flow (Q) = -11,856.35 KW

100) Ambient Temperature is

A. Normal Out-door Temperature with wind

B. Shaded Temperature with well ventilated

C. Shaded Temperature without ventilated

D. Normal Indoor Temperature without ventilated