西 安 电 子 科 技 大 学

考试时间 120 分钟

试　　题

题号	一	二	三			总分
分数						

1.考试形式：闭卷； 2.考试日期：2022 年 月 日； 3.本试卷共 3 大题，满分 100 分。

班级_____学号_____姓名_____任课教师_____

NOTE: Write all answers on the answer sheet.

Gantt chart ⇒ 任务之间的重叠关系 (Overlap).
PERT chart ⇒ 不同任务之间的依赖 dependencies

Q.1：Multiple Choice. (20points)

1.Which of the following is a graphical network model used to depict the interdependencies between a project's tasks? A.

A. PERT chart　　B. Bar chart　　C. Line chart　　D. Gantt chart

2. What models the life cycle of a single object? C

A. activity diagram ⇒ 活动的顺序　　B. temporal diagram 时间图

C. statechart diagram　　D. event diagram

3. Which of the following could be modeled as an external agent on a DFD modeling a payroll system? A.

A. A bank receiving a tape of payroll entries for direct deposit.

B. A programmer writing software code for the system

C. An operations engineering mounting a tape on a tape drive.

D. A DBA tuning the payroll database

4. This type of object contains business-related information that is typically persistent and stored to a database. It is an: B.

A. temporal object　　B. entity object　　C. control object　　D. interface object

5. A systems design approach that utilizes structured, prototyping, and JAD techniques to quickly develop systems is known as: D.

A. information engineering　　B. accelerated application development

C. model-driven design　　D. rapid application development

6. Which of the following is **not** a Transaction Processing System? C.

A. Order Processing　　B. POS (Point Of Sales) system

C. Sales reporting　　D. Airline reservations

7. Structured design is considered what type of technique? A

A. Process-oriented technique　　B. Data-oriented technique

C. Object-oriented technique　　D. RAD

8. _____ is the process of scooping, planning, staffing, organizing, directing, and

controlling a project to develop an information system.

A. Process management
B. Requirements management
C. Project management
D. System management

9. Which of the following is a tool that can be used to specify application architecture?

A. architecture design diagram
B. physical data flow diagram
C. structure chart
D. physical data model diagram

10. A system in which components are distributed across multiple locations and computer network is called a(n):

A. networked system
B. legacy system
C. multi-tiered system
D. distributed system

11. Which of the following reports are external outputs that reenter the system as inputs?

A. turnaround
B. detailed
C. summary
D. exception

12. Which of the following is **not** a common user interface problem?

A. excessive use of computer jargon
B. less than intuitive design
C. interface design is consistent
D. inability to distinguish between alternative actions

13. Those things that an object can do and that correspond to functions that act on the object's data (or attributes) is known as a(n):

A. actor
B. class
C. action
D. behavior

14. Costs that occur at regular intervals and known rates are known as ___.

A. variable
B. fixed
C. intangible
D. tangible

15 According to PIECE framework, "Accessing to the system or information must be controlled." belongs to ___ requirements.

A. Performance
B. Information
C. Control
D. Service

16. Input format checks ___.

A. ensure that the correct type of data is input.
B. compare data entered against the known formatting requirements for that data.
C. determine whether a known relationship between two fields is valid.
D. determine data entry errors on primary keys.

17. ___ diagrams graphically depict the interactions between the system and external systems and users.

A. Use case
B. Class
C. Object
D. Sequence

18. Which of the following individuals are mainly concerned with the costs and benefits of an information system?

A. A system user
B. A system analyst
C. A system owner
D. A system designer

19. Which of the following is not a criteria for evaluating candidate feasibility?

A. system feasibility
B. operational feasibility
C. schedule feasibility
D. economic feasibility

20. The goal of the system analyst is to define system requirements that meet the following

criteria: (i) consistent, (ii) complete; (iii) feasibility; (iv) required; (v) accurate; (vi) marketable; (vii) traceable; (viii) verifiable. Which of the following is true? B

A) All, i.e. (i)-(viii)
B) All, except (iv)
C) All, except (viii)
D) All, except (vi)

Q.2: For each of the tasks listed below, draw a PERT chart and determine the critical path. (20 points)

Activity ID	Activity Description	Duration (Weeks)	Predecessor
A	Requirement Collection	2	None
B	Business process analysis	2	A
C	Business data analysis	3	B
D	Process design	8	B
E	Database design	5	C
F	Interface design	1	C,D
G	Report design	4	D,E
H	Programming desgn	5	F,G
I	Test and Documentation	7	G
J	Installation	3	H,I

Q.3: Given the narrative description, answer the questions. (60 points)

(1) Draw the Context Data Flow Diagram and Top-level Data Flow Diagram for SAS (15 points)

(2) Produce an Entity Relationship Diagram (Logical Data Model) and a set of Normalized Tables for the scenario. (20 points)

Sample table: Tblname (primarykey#, foreignkey#, attr1, attr2)

(3) It has been decided that the system will be developed using object-oriented analysis and design (OOA/OOD) methodology.

a) Draw a UML Use Case diagram for SAS and write the expanded description of ONE primary use case (表格形式). (15 points)

b) Design an initial Analysis Class Model that shows the process and data required to support SAS. (10 points)

A Student Accommodation Service(SAS) helps university students to find properties (公寓) to rent in the city in which they are studying. An information system is required to help the Service maintain lists of landlords, their properties and of students seeking accommodation.

All of the properties are owned by private landlords: each property is owned by one landlord, though some landlords own several properties. The name, address and telephone

number of landlords are kept. When new properties are added to the system they are allocated a unique identifying number and details are taken of the address, type of property (for example, flat, terraced（有阳台的） house, detached house（独立式住宅）), the maximum number of tenants（房客） it is suitable for and amount of the rent. Landlords are charged a fee for each property that is added to the system.

Students seeking accommodation have to register with the Service providing their name, current address, telephone number, their date of birth and gender（性别）. Once registered, a student can be provided with a list of available properties. If a student makes a request to review（查看） a property the Service arranges a viewing with the landlord. Details are kept of each viewing that is arranged including the date on which it took place and which student or students were involved (friends often seek accommodation together).

Landlords notify the Service when a property is no longer available for rent and when a property is once again available. In both cases the Service updates the property file so that students seeking accommodation can be given an accurate list.