

ALGO
MCQ

1. The array-based implementation of a recursive list is ?

- ✓ (a) static
- (b) linked
- ✓ (c) contiguous
- (d) dynamic

2. A stack is a structure intrinsically ?

- ✓ (a) Recursive
- (b) Iterative
- (c) Repetitive
- (d) Alternative

3. Which operations define a recursive list ?

- (a) begin
- (b) length
- ✓ (c) tail
- ✓ (d) cons

4. The making of an iterative list is based on ?

- The insertion of an element at the first box of the list
- ~~(b) The recovery of the rest of the list~~
- ✓ The insertion of an element at the Kth box of the list
- ~~(d) The insertion of an element at the head of the list~~

5. The linked-list implementation of an iterative list is not possible ?

- ✓ (a) false
- (b) true

6. A queue is a structure ?

- (a) LIFO
- (b) PIPO
- ✓ (c) FIFO
- (d) FILO

7. The array-based implementation of a stack is ?

- ✓ (a) static
- (b) linked
- ✓ (c) contiguous
- (d) dynamic

8. Which operations do operation1 and operation2 represent in the following axiom (where e is an element and x a stack) $\text{operation1}(\text{operation2}(e,x)) = e$?

- (a) operation1 = top, operation2 = pop
- (b) operation1 = pop, operation2 = top
- (c) operation1 = top, operation2 = push
- (d) operation1 = pop, operation2 = push

9. A stack is a structure ?

- (a) LIFO
- (b) PIPO
- (c) FIFO
- (d) FIPO

10. What do x, operation1 and operation2 represent in the following axiom (where e is an element) ?

$\text{isempty}(x) = \text{false} \Rightarrow \text{operation1}(\text{operation2}(x,e)) = \text{operation2}(\text{operation1}(x),e)$

- (a) x is a queue, operation1 = enqueue, operation2 = dequeue
- (b) x is a stack, operation1 = pop, operation2 = push
- (c) x is a queue, operation1 = dequeue, operation2 = enqueue
- (d) x is a stack, operation1 = insert, operation2 = push



MCQ Electronics – InfoS1

Read the questions AND the answers provided (pay attention to the numbering of the answers)

Consider the sinusoidal voltage $v(t) = V \cdot \sqrt{2} \cdot \sin(\omega t + \varphi)$. \underline{V} is the complex amplitude associated to $v(t)$. (Q21&22)

Q21. What is the modulus of \underline{V} ?

- a. V
 b. φ

- c. ωt
d. $V \cdot \sqrt{2}$

Q22. What is the argument of \underline{V} ?

- a. $\omega t + \varphi$
 b. φ

- c. ωt
d. V

Consider a resistor R , a capacitor C and a coil with inductance L . (Q23 à 26)

Q23. The capacitor and the resistor are associated in parallel. What is the equivalent complex impedance \underline{Z} out of this association?

- a. $\underline{Z} = \frac{R}{1+jRC\omega}$
 b. $\underline{Z} = \frac{1}{R} + jC\omega$

- c. $\underline{Z} = \frac{jRC\omega}{R+jC\omega}$
d. $\underline{Z} = \frac{1}{R} + C$

Q24. The capacitor and the inductor are associated in series. What is the equivalent complex impedance \underline{Z}' out of this association?

- a. $\underline{Z}' = L + C$
b. $\underline{Z}' = jC\omega + \frac{1}{jL\omega}$

- c. $\underline{Z}' = j(L + C)\omega$
 d. $\underline{Z}' = \frac{1-LC\omega^2}{jC\omega}$

Q25. The capacitor and the inductor are associated in parallel. What is the equivalent complex impedance \underline{Z}'' out of this association?

- a. $\underline{Z}'' = \frac{jL\omega}{1-LC\omega^2}$
b. $\underline{Z}'' = \frac{1}{L} + \frac{1}{C}$

- c. $\underline{Z}'' = \frac{1}{jL\omega} + jC\omega$
d. $\underline{Z}'' = \frac{1-LC\omega^2}{jC\omega}$

What is the phase shift of the current crossing Z'' with respect to the voltage between its terminals?

- a. $+\frac{\pi}{2}$
- b. $-\frac{\pi}{2}$
- c. $-\pi$
- d. $\pm\frac{\pi}{2}$ depending on the frequency

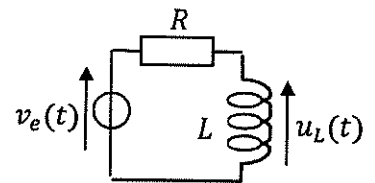
Q27. What is the unit of $L\omega$?

- a. Siemens
- b. Hertz
- c. Ohms
- d. No unit

Q28. What is the argument of the complex impedance of a dipole?

- a. The ratio between RMS values of current crossing the dipole and the voltage between its terminals
- b. The instantaneous value of the voltage between dipole terminals
- c. The phase shift between the voltage between dipole terminals and the current crossing it.
- d. The phase shift with respect to the origin

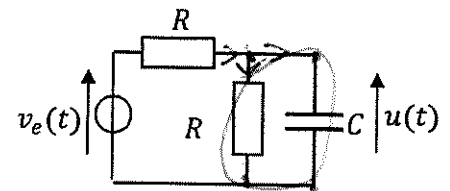
Q29. Given the diagram on the right where $v_e(t) = V_E \cdot \sqrt{2} \sin(\omega t)$.



The complex amplitude related to the voltage between coil terminals is:

- a. $\underline{U}_L = \frac{L}{R+L} \cdot V_E$
- b. $\underline{U}_L = \frac{jL\omega}{R+jL\omega} \cdot V_E$
- c. $\underline{U}_L = \frac{L}{R+L} \cdot V_E \sin(\omega t)$
- d. $\underline{U}_L = \frac{jL\omega}{R+jL\omega} \cdot V_E$

Q30. Consider the diagram on the right where $v_e(t) = V_E \sin(\omega t)$.



The complex amplitude related to the voltage $u(t)$ is:

- a. $\underline{U} = \frac{1}{1+jRC\omega} V_E$
- b. $\underline{U} = \frac{V_E \sin(\omega t)}{1+jRC\omega}$
- c. $\underline{U} = \frac{V_E}{R+jC\omega}$
- d. $\underline{U} = \frac{V_E}{2+jRC\omega}$

Test 6

Computer Architecture

Monday 27 November 2023

For all the questions, one or more answers are possible.

31. $A \oplus B =$

A. $\overline{A.B} + A.B$

~~B. $\overline{A} \oplus B$~~

✓ C. $\overline{A.B} + A.\overline{B}$

✓ D. $\overline{A} \oplus \overline{B}$

32. $A + B.C =$

~~A. $(A + B).(B + C)$~~

B. None of these answers.

✓ C. $(A + B).(A + C)$

~~D. $(A + C).(B + C)$~~

33. $A + B + C + D + E + \overline{A} =$

✓ A. 1

B. 0

C. $B + C + D + E$

D. A

34. $\overline{A} + \overline{A}.B + \overline{A}.B.C + \overline{A}.B.C.D =$

A. None of these answers.

B. 0

C. 1

✓ D. A

35. $A + \overline{A}.B + \overline{A}.B.C + \overline{A}.B.C.D =$

A. None of these answers.

✓ B. $A + B$

C. 0

D. 1

36. $X = A.B.C + A.B.D + \bar{A}.B.C$

- ~~A.~~ X is a product of sums.
- ~~B.~~ X is a minterm canonical form.
- ~~C.~~ X is a maxterm canonical form.
- ✓ D. None of these answers.

37. $X = (A + B + C).(B + A + \bar{C}).(\bar{A} + C + B)$

- ✓ A. X is a product of sums.
- B. X is a minterm canonical form.
- ✓ C. X is a maxterm canonical form.
- D. None of these answers.

38. $X = A.B + \bar{A}.B + \bar{A}.\bar{B}$

- ~~A.~~ X is a product of sums.
- ✓ B. X is a minterm canonical form.
- C. X is a maxterm canonical form.
- D. None of these answers.

39. $X = \bar{B} + A.C$

What is the minterm canonical form of X:

- A. $A.C.B + \bar{A}.C.B + \bar{A}.\bar{C}.B + \bar{A}.\bar{C}.\bar{B}$
- B. $(A + C + \bar{B}).(A + \bar{C} + \bar{B}).(\bar{A} + C + \bar{B})$
- ✓ C. $\bar{A}.\bar{C}.\bar{B} + \bar{A}.C.\bar{B} + A.\bar{C}.\bar{B} + A.C.\bar{B} + A.C.B$
- D. $(\bar{A} + \bar{C} + B).(\bar{A} + C + B).(A + \bar{C} + B)$

40. $X = \bar{B} + A.C$

What is the maxterm canonical form of X?

- ~~A.~~ $A.C.B + A.\bar{C}.B + \bar{A}.C.B + \bar{A}.\bar{C}.B + \bar{A}.\bar{C}.\bar{B}$
- ✓ B. $(A + C + \bar{B}).(A + \bar{C} + \bar{B}).(\bar{A} + C + \bar{B})$
- ~~C.~~ $\bar{A}.\bar{C}.\bar{B} + \bar{A}.C.\bar{B} + A.\bar{C}.\bar{B} + A.C.\bar{B} + A.C.B$
- D. $(\bar{A} + \bar{C} + B).(\bar{A} + C + B).(A + \bar{C} + B)$

ADP MCQ 6; 27/11/23

Graph 1:

41. What does Graph 1 show?

- a) The distribution of Asian populations throughout the USA.
- b) Americans living in 16 Asian countries.
- c) The distribution of the Chinese population in different parts of the US.
- d) The evolution of the Indian population living in the US.

42. How has the number of Asians living in the US changed over the past 30 years, according to the New York Times?

- a) No change
- b) It has doubled
- c) It has tripled
- d) It has quadrupled

43. Which of the following CAN be seen in the graph?

- a) The highest number of Asians living in the US is the Pakistanis.
- b) The Burmese immigrants are clustered around mostly in Alaska.
- c) There is a high number of immigrants from Nepal and Indonesia.
- d) Most Asian immigrants live in the Western part of the US.

44. What CANNOT be seen on the graph?

- a) Names of the states where Asians live.
- b) The total number of Koreans living in the US.
- c) Indonesians representing the smallest group.
- d) States where the Asian population makes up more than 0.5% of the total population.

45. Which conclusion could be drawn directly from the graph?

- a) Asians are now the fastest growing of the nation's four largest racial and ethnic groups.
- b) There are at least 20 Asian nationalities living in America.
- c) Almost 20 million Asians live in the USA.
- d) U.S. Asians are geographically diverse and have a broad variation in income.

Grammar: Choose the ONE correct completion.

46. Bobby and Rita _____ in Rome _____ 10 years.

- a. lives / since
- b. have lived / since
- c. have lived / for
- d. lives / for

47. _____ Cynthia was little, she _____ to be a footballer.

- ~~a. For / wants~~
- ~~b. For / has wanted~~
- ✓ c. Since / has wanted
- d. Since / wants

48. Stella _____ New York six times _____ she started university.

- ✓ a. has visited / since
- ~~b. visited / for~~
- c. visits / since
- ~~d. visiting / for~~

49. I _____ for you to call _____ weeks.

- ~~a. waits / since~~
- ~~b. waits / for~~
- c. have been waiting / since
- ✓ d. have been waiting / for

50. Paul _____ balloons _____ you got here.

- ~~a. has blown up / for~~
- ✓ b. has been blowing up / since
- c. blew up / since
- ~~d. blows up / for~~

Look at the following texts and answer the questions 51 to 55:

Rose Hill Hotel



SEMINAR SCHEDULE – JULY 18, 20__

9:00 – 10:15 am Gardenia Room. **New Rules for the Work Force.** Cranston Davis, a personnel consultant with Davis & Associates, will lead a discussion on how the rules recently adopted by the Department of Labor will impact small and medium-sized companies.

9:30 – 11:00 am Green Orchid Room. **Introduction to Trademarks.** Miranda Romero, an attorney with Romero & Brown, will explain the concept of a trademark, and why protecting your company's mark is fundamental to its success.

10:30 – 12:00 pm Blue Rose Room. **Make your Advertising Sing!** John White, an advertising consultant with Chang & Associates, will provide tips on how to make your Internet advertising stand out from the competition.

12:00 – 1:30 pm Cafeteria. Buffet Lunch.

1:30 pm – 4:00 pm Green Orchid Room. **Privacy for All.** Concerns about privacy are everywhere. Margaret Bloomstad will lead a presentation on how the company has implemented new privacy protections for our clients, including significant changes to the ways we handle our clients' confidential personal and financial information.

3:30 pm – 4:45 pm Gardenia Room. **Sales Retrospective.** We all know it's important to gain new customers, but what about meeting additional needs of our existing customer base? Sara Mendez, sales manager for the Rose Hill Hotel, talks about how we can market additional products to clients already on our books, and build upon those relationships already in place.

To: Seminar Planning Committee
From: Sandy Montgomery
Date: June 4, 20__
Re: Seminar Schedule

Hi Team,

I have just reviewed the draft schedule for next month's seminar. Congratulations on putting together such an impressive list of speakers. I heard Cranston Davis speak last month – outstanding. John White was also a speaker for us several years ago, and did an excellent job.

Unfortunately, we're going to have to move things around a bit. The presentation on work force rules is mandatory for everyone, so we can't have that presentation overlap with anything else. I don't think the privacy presentation will take more than 90 minutes, so maybe we can tighten that up a bit. John White also left me a message, and asked if we could move his presentation to the afternoon.

Are there any other issues? Will anyone need any audio-visual equipment? Let me know by the end of the day tomorrow, so we can begin finalizing the arrangements.

Sandy

To: Sandy Montgomery
From: John Forsythe
Date: June 5, 20__
Re: Seminar Schedule

Hi Sandy,

Thanks for your memo. I'm not sure how to fix the scheduling problems you noted, but here are some ideas.

Margaret's assistant told me yesterday that Margaret only needs an hour for her presentation, and that she is free any time during the day. What about moving her to the morning, and giving her afternoon time slot to John?

Can we move the presentation on Work Force Rules to the afternoon? Miranda Romero only has the one time slot available for her presentation. We either leave her at 9:30 to 11:00, or we have to find another speaker to replace her. It would be a shame to lose her, in my opinion.

So long as we have a microphone and a projector for presentation slides in each conference room, I don't think we need any other equipment.

Let me know what you think of the proposed schedule changes, when you have a moment. We can also talk about this at the next committee meeting.

John

51. What problem is Sandy trying to solve?
- a. She has already heard Margaret Bloomstad speak.
 - b. The schedule of presentations must be re-arranged.
 - c. There is only one presentation in the Blue Rose Room.
 - d. There is no audio-visual equipment.
52. Who is John Forsythe?
- a. A replacement speaker at the seminar.
 - b. An employee of Miranda Romero.
 - c. A member of the Seminar Planning Committee.
 - d. Manager of the Rose Hill Hotel.
53. What is definitely true about Miranda Romero?
- a. She can give her presentation in the afternoon.
 - b. Her presentation is currently at an inconvenient time.
 - c. She is an accountant.
 - d. Sandy Montgomery has heard her speak before.
54. What presentation must all participants attend?
- a. New Rules for the Work Force.
 - b. Introduction to Trademarks.
 - c. Privacy for Ali.
 - d. Sales Retrospective.
55. Who works for the Rose Hill Hotel?
- a. Sandy Montgomery.
 - b. John Forsythe.
 - c. Cranston Davis.
 - d. Sara Mendez.

Turn to the next page.

Look at the following texts and answer the questions 56 to 60:

THE MORGAN CITY HERALD

Monday, April 16

The State Bureau of Tourism is predicting a **banner** year. Camping should be more popular than ever, with state parks full every weekend. Beach traffic also should be high, as the

summer should be warmer than normal. The increased revenue from tourism is important to the state, and strong tourism seasons have usually resulted in financial boosts to libraries and schools. The state, however, will make its budgeting decisions in the fall.

Date: October 1, 20__

From: Wendy Miller, State Bureau of Tourism

To: Candace Chu, Morgan Consulting

Subject: Summer Data

Hi Candace,

It's time for the annual surveys of tourism industry businesses to see how the summer panned out for everyone. I know our expectations were not met, due to the weather and gas prices. Indeed, I suspect a couple of sectors had seasons that were worse than last year.

We also need to focus on the businesses near the coast. Mark Rogers from the Department of State Parks has already reported disappointing figures for the campgrounds under his jurisdiction; I'm hoping the same is not true for resorts near the water. Diana Suh, my assistant, will also be working with you to make sure everything from our end goes smoothly.

Let me know if you need anything else for your work. I look forward to your report.

Wendy

THE MORGAN CITY HERALD

Wednesday October 31

Weather, High Gas Prices Resulted in Depressed Summer Travel

The State Bureau of Tourism has confirmed what many already knew: the summer was a disappointment. Visits to the state's parks increased by less than one percent, and hotel reservations were down slightly. State economists estimated that tourism added \$450 million to the economy, which was barely up from the \$445 million earned last year. "It was a rough season," admitted Sandra Mulligan, head of the Bureau.

Several factors contributed to the mediocre tourism season. The summer was unusually cool, with temperatures 3 °C lower than average. As a result, fewer people went to the beach. Gasoline prices were five cents a liter higher than last year, and the high rate of unemployment hampered many people's travel plans. "People decided against the long vacation this year, preferring instead a number of long weekends close to home," said Gordon Anderson, professor of economics at Redman University. Professor Anderson noted that among other things, usage of municipal parks and local pools was up almost eight percent, despite the cooler weather.

Questions are on the next page

56. What does the first article predict?
- a. More traffic jams.
 - ✓ b. More people camping this year than last.
 - c. An increased tax rate.
 - d. Better schools and libraries.
57. Who is Mark Rogers' employer?
- a. The Morgan City Herald.
 - b. Redman University.
 - ✓ c. The Department of State Parks.
 - d. Morgan Consulting.
58. According to the second article, what did the State experience?
- ~~a.~~ A decrease in visits to state parks.
 - ~~b.~~ A change in the head of the Bureau of Tourism.
 - ~~c.~~ Fewer people using local swimming pools.
 - ✓ d. Cooler than expected weather.
59. In the first article, the word "banner" in line 1 is closest in meaning to:
- ✓ a. superb
 - b. mediocre
 - c. horrific
 - d. sub-par
60. What was an effect of the weather this summer in the state?
- ✓ a. Fewer people went to the beaches.
 - ~~b.~~ Unemployment increased.
 - ~~c.~~ Tax revenues stayed the same.
 - ~~d.~~ More people took long trips.