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AP GRAMA / WARD Sachivalayam - 2019

Panchayat Secretary Gr. VI - DIGITAL ASSISTANT

Questions with Detailed Solutions

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AP GRAMA / WARD SACHIVALAYAM - 2019

Panychayat Secretary Gr.VI-Digital Assistant

Questions with Detailed Solutions

PART – A

- 01. Gautamiputra Satakarni was praised by this inscription as "Kshatriya Darpa Mardana".
 - (1) Nasik Inscription
 - (2) Gandhara Inscription
 - (3) Chandraprabha Inscription
 - (4) Nanaghat Iscription

01. Ans: (1)

- 02. Protem Chairman of the Constituent Assembly of India is
 - (1) Rajendra Prasad
 - (2) Sarat Chandra Sinha
 - (3) Sachchidananda Sinha
 - (4) Yashwant Sinha
- 02. Ans: (3)
- 03. Another name of the Constitution (74th Amendment) Act, 1992 is
 - (1) Nagarapalika Act
 - (2) Panchayati Raj Act

- (3) Muncipalities Act(4) Cantonment Boards Act
- 03. Ans: (3)
- 04. Find out the correct sentence with reference to society
 - (1) Society can exist without population
 - (2) Society is a sovereign body
 - (3) Society originated prior to the State
 - (4) Society has territorial boundaries
- 04. Ans: (3)

05. According to the National Youth Policy, 2014 (NYP 2014), the age group of youth is (1) 15 – 29 years
(2) 14 – 28 years

- (3) 16 30 years
- (4) 17 31 years
- **05.** Ans: (1)



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06.	An important river in Manipur and Mizoran	n	10	In a certain	code " FLC	OWER" is coded as
	is is			36 and SUN	NFLOWER is	s coded as 81. Then
	(1) Kameng			how is FOL	LOWS code	d?
	(2) Barak			(1) 25		(2) 81
	(3) Lohit			(3) 49		(4) 64
	(4) Subansiri		10	Ans: (3)		
06.	Ans: (2)					
			11	If $P \times Q$ imp	plies $(P^2 + Q^2)$	²),
07.	In Andhra Pradesh, high quality tale			then $8 \times (3 \times 3)$	× 2) =	
	soapstone is available in Anantapur Distric	t		(1) 648		(2) 86
	near the town of	ERI	V	(3) 233		(4) 104
	(1) Dharmavaram (2) Kalyandurg		11	Ans: (3)		
	(3) Kadiri (4) Tadipatri			EZ.		
07.	Ans: (4)		12	In May	2019, the	e World Health
				Organizatio	on declared t	these two countries
08.	The Government of Andhra Pradesh has	5		as "malaria	-free".	
	accorded high priority for accelerated	1		(1) Bolivia	and Botswan	a
	development of tribes by implementing			(2) Albania	and Angola	
	(1) Technical Development Programmes		\langle	(3) Bulgaria	and Burund	i
	(2) Professional Development Programmes	ce 1	0	(4) Argentir	na and Algeri	a
	(3) Psychological Development Programme	s	12	Ans: (4)		
	(4) Socio-economic Development Programmes					
08.	Ans: (4)		13	The newly	identified	80 th organ in the
				human body	y is	
09.	Six smart people can read 12 books in size	κ.		(1) Mesente	ery	
	hours. How many books can three of these	e		(2) Interstiti	um	
	smart people read in nine hours?			(3) Jejunum	l	
	(1) Three (2) Six			(4) Cochlea	r	
	(3) Twelve (4) Nine		13	Ans: (1)		
09.	Ans: (4)					

	ACE Engineering Publications	4		Panchayat Secretary Gr. VI			
14.	On 6 th July, 2019, this city in India was	S	16.	Ans: (2)			
	recognized and declared as a Heritage city	7					
	by UNESCO.		17.	The Satavahana Kingdom was divided into			
	(1) Madurai – Tamil Nadu			Janapadas, Aaharas and Gramas. The			
	(2) Udaipur – Rajasthan			Aahara was headed by			
	(3) Jaipur – Rajasthan			(1) Amatya (2) Prince			
	(4) Agra – Uttar Pradesh			(3) Rajuka (4) Mahamatra			
14.	Ans: (3)		17.	Ans: (1)			
15.	Recently this country has passed the		18.	The hymns of the Vedas are explained in an			
	Protection from Online Falsehoods and	FKI	VG	orthodox manner in			
	Manipulation Bill 2019 in its Parliament.			(1) The Upanishads			
	(1) Singapore			(2) The Aranyakas			
	(2) Australia		(3) The Brahmanas				
	(3) England		(4) The Puranas				
	(4) Denmark		18.	Ans: (3)			
15.	Ans: (1)						
			19.	The Preamble of the Indian Constitution			
16.	Consider the following statements:		\leq	declared India as a Republic. In this context,			
	A. Insoluble volatile mixtures like alcoho	ce 1	99	the term 'Republic' denotes the following			
	and benzene are separated by steam			sentence:			
	distillation.			(1) There will be no hereditary rule			
	B. Mixtures of solids like KCL and KNO	3		(2) The head of the State is a nominated			
	from a salt solution are separated by	7		person			
	fractional crystallization.			(3) There will be special status for upper			
	C. Insoluble volatile mixtures like	•		classes			
	acetone and methyl alcohol are	•		(4) Supreme Court exercises control over			
	separated by fractional distillation.			Union Executive			
	Which of these statements is/are correct?		19.	Ans: (1)			
	(1) A only (2) A and C only						
	(3) B only (4) B and C only						
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/training of construction
e considered and pursued
efits to the workers and
The Andhra Pradesh
indentified the following
purpose:
ate of Tool Design
stitute of Construction
and Research
te of Infrastructure and
demy of Construction
•
eans \div , \times means –, and +
$\frac{5\times4)-8\times4}{8\times2+16\div1} =$
(2) 8
(4) 16
a+b+c.
8, then $\frac{a}{a}$ is equal
2) 4
$1) \frac{1}{2}$
4



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Batches for GATE + PSUs - 2021						
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Morning Batch	6am to 8am	21 st September	12 to 15 Months	Abids, Kukatpally, Dilsukhnagar		
Evening Batch	6pm to 8:30pm	21 st September	12 to 15 Months	Dilsukhnagar, Kukatpally		
Batches for ESE + GATE + PSUs - 2021						
	Baton					
Morning Batch	6am to 8am	21° September	16 to 18 Months	Abids		
	Batches	for SSC - JE (PRELI	MS & MAINS)			
Regular Batch	Daily 5 to 7 hours	14 th September	100 to 120 Days	Abids		
	Bato	hes for APPSC / TSP	SC - AEE			
Regular Batch	Daily 4 to 8 hours	09 th September	6 to 7 Months Depends on Exam Date	Abids		
	Batches	for GENCO / TRANSC	CO / DISCOMs			
Regular Batch	Daily 4 to 6 Hours	14 th September	5 to 6 Months	Abids		

		7	Digital Assistant _ Question & Solutions
27.	Refer to the graph and answer the question 370 360 350 340 320 Jan Feb Mar Apr May June July Consumer Price Index in 2008-09 In how many month was CPI greater than 250 as non the graph?	n	 30. Which of the following is / are correctly matched? Name Date of Assumption of Office A. D.Sanjivaiah – 11.01.1960 B. K.Brahmananda Reddy – 25.09.1971 C. J.Vengal Rao – 06.03.1978 D. K. Vijaya Bhaskara Reddy– 09.10.1992
27.	 350 as per the graph? (1) One (2) Two (3) Three (4) Four Ans: (2) 	ER <i>II</i>	 (1) B only (2) B and C (3) A and D (4) C only
28.	 Siri, Assistant, Alexa and Cortana are software agents and virtual/voice assistants that perform certain tasks. The above four respectively belong to (1) Microsoft, Amazon, Google, Apple (2) Amazon, Google, Apple, Microsoft (3) Microsoft, Amazon, Apple, Google (4) Apple, Google, Amazon, Microsoft 	e s r	 30. Ans: (3) 31. The Article concerning the State Election Commission is (1) 243 I (2) 243 P (3) 324 I (4) 243 K 31. Ans: (4) 32. The last subject in the Eleventh Schedule
28. 29.	Ans: (4) The famous philosopher Acharya Nagarjuna was in the Court of (1) Yagnasri Satakarni (2) P. I	a	 added through the Constitution (Seventy – third Amendment) Act, 1992 is (1) Maintenance of Community Assets (2) Regulation of Slaughter houses (3) Agriculture
29.	 (2) Pulomavı – III (3) Satakarni –I (4) Sri Mukha Ans: (1) 		(4) Urban Planning32. Ans: (1)

	ACE Engineering Publications	8		Panchayat Secretary Gr. VI				
33.	Anubhav Mantapa was established by Basava for achieving a	,	36.	Ans: (2)				
	(1) New spiritual order(2) New religious order(3) New social order		37.	The source of funding for Andhra Pradesh State Christian (Minorities) Finance Corporation is				
33. 34.	(4) New family orderAns: (3)Forests that grow under rainfall of over		 (1) The Government of Andhra Pradesh (2) The Anglo-Indian Community (3) Faith-based Grants (4) Stewardship Foundation 					
	 200cm and annual temperature above 22° are know as (1) Tropical evergreen and Semi-evergreen forests (2) Tropical deciduous forests (3) Tropical thorn forests (4) Littoral and Swamp forests 	RI	37. V <i>G</i> 38.	 Ans: (1) If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that language? (1) CPNCBX (2) CPNCBZ 				
34. 35.	Ans: (*) (Most probable answer is 4) Sajja crop in Andhra Pradesh is largely grown in these districts. (1) Kurnool and Anantapur (2) Chittoor and Kadapa (3) Guntur and Prakasam	ce 1	38. 39.	 (2) CFNCBZ (3) CPOCBZ (4) CQOCBZ Ans: (2) In an examination, 75% of the students passed in English, 90% passed in Mathematics and 70% passed in both 				
35.	(4) Visakhapatnam and PrakasamAns: (4)			English and Mathematics. If 40 students failed in both the subjects, find the total				
36.	The Mahatma Gandhi National RuralEmployment GuaranteeScheme waslaunched on 2 nd February, 2006 in AndhraPradesh in the district of(1) Kadapa(2) Anantapur(3) Srikakulam(4) Guntur	l ;	39.	number of students. (1) 800 (2) 450 (3) 250 (4) 350 Ans: (1)				

	ACE Engineering Publications	9	Digital Assistant _ Question & Solutions
40.	If $X + Y > 0$ when $X > Y$, then which of the following <i>cannot</i> be true? (1) $X = 3$ and $Y = 0$ (2) $X = 6$ and $Y = -1$ (3) $X = -3$ and $Y = 0$ (4) $X = 3$ and $Y = -3$;	 44. Consider the following Statements A. Metals are malleable and ductile B. Non-metals are brittle and ductile C. Non-metals have high melting and boiling points Which of these statements is /are correct?
40.	Ans: (4)		 (1) A, B and C (2) A and C only (2) D = 1 C = 1
41.	B is 3:5 respectively. If the difference between B's present age and A's age after 4 years is 2 what is the total of A's and B's present age (in years)? (1) 24 (2) 32 (3) 48 (4) 27		 (3) B and C only (4) A only 44. Ans: (4) 45. Consider the following statements A. The unit of density is kg/m³ B. The density of water is 100 kg/m³
41.	Ans: (1)		C. Relative density has no units Which of the above statements is /are
42. 42.	The Central Cabinet Minister GajendraSingh Shekhawat holds the portfolio 'JaShakti'. He belongs to the State of(1) Haryana(2) Rajasthan(3) Punjab(4) GujaratAns: (2)	ce 1	Correct ? (1) A, B and C (2) A and C only (3) A and B only (4) B only 45. Ans: (2) 46. Choose the correct sequence labelled as P O, B, S to are due the correct sequence for the correct sequence of the correct sequence
43.	 Digi Locker is an (1) Online money storage facility (2) Online ornaments storage facility (3) Online documents storage facility (4) Online Stemcell storage facility 		Q, R, S to produce the correct sentence. <u>Whom I taught / the student/ a teacher / became</u> P Q R S (1) RSPQ (2) QRSP (3) SPRQ (4) QPSR 46. Ans: (4)
43.	Ans: (3)		Ans: The student whom I taught became a teacher.



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47.	I have been liv 20 years. Choose the best	ing in Hyderabad	-	50	When laptop? Choose the	you g	oing to	o get o fill	a new in th
	(1) for	(2) since			blank.	1			
	(1) for (3) from	(4) before			(1) is		(2) are	:	
47.	Ans: (1)				(3) do		(4) wi	1	
Sol:	'for' is used wit	h a period of time.		50	Ans: (2)				
		-		So	I: The helping v	verb 'are'	should	be us	sed wit
48.	I am going t	to stand fornext	t		'you'.				
	Parliament elec	tion.							
	Choose the co blank.	prrect option to fill in the		V	ACAD	PART –]	В		
	(1) the	(2) a		51	. A full binar	ry tree w	rith 2n	+ 1	node
	(3) an	(4) No article required			contains ²				
48.	Ans: (4)				(1) n leaf nod	es			
					(2) n non-leaf	nodes			
49.	Choose the part	t labelled as A, B, C, D that	t		(3) $n - 1$ leaf :	nodes			
	has an error				(4) n – 1 non-	leaf nodes			
	The teacher / w	hich inspired me most/		51	Ans: (2)				
	(A)	(B) Since	ce 1	9	95				
	at school / was o	called Ms. Neelima.		52	. The total num	nber of di	fferent	trees	that ar
	(C)	(D)			possible with	six nodes	is		
	(1) A	(2) B			(1) 64		(2) 4		
	(3) C	(4) D			(3) 58		(4) 12		
49.	Ans: (2)			52	. Ans: (*) (Th	e correct	answer	is 13	2)
Sol:	The teacher is	s a person so the relative	e	So	I: The total num	mber of di	fferent	trees	that ar
	pronoun should	be 'who'			possible with	6 nodes			
					Answer is no	ot in the op	otion		
					Formula is :	(C(2n,n)/r	n+1)*n!		
					Number of	distinct l	oinary	searc	h tree
					formula is Ca	itallan nu	mber :	C(2n	,n)/n+]

		12			Panchayat Secretary Gr. VI
	If $(N = 3)$ then distinct trees are 5 $ \begin{array}{c} * & * & * & * \\ / & / & / & & \\ * & * & * & * & * \\ / & & & & & & \\ / & & & & & & & \\ / & & & & & & & \\ / & & & & & & & & \\ / & & & & & & & & \\ / & & & & & & & & \\ / & & & & & & & & \\ / & & & & & & & & \\ / & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & & \\ / & & & & & & & & & & \\ / & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & & \\ / & & & & & & & & & & & & & & & & & \\ / & & & & & & & & & & $	12	5555555555555	5. C I = w i j O (1 5. A 6. W co	Panchayat Secretary Gr. VI onsider the following program segment: = $6720, j = 4$ hile $((i\%j) = = 0)$ = $i/j;$ = $j + 1;$ } n termination j will have the value) 4 (2) 8 (3) 9 (4) 6720 ns: (3) Vhat will be the output of the following C ode? # include <stdio.h></stdio.h>
53.	C(2n, n) / n + 1 = 132 Total trees = =(C(2n,n)/n+1)*n! = 132 * 6! Convert the expression (A * B) – (C * D)/ ((F + G) – H) to equivalent prefix notation (1) – * AB/ * CD – + FGH (2) * – AB/ * CD + – FGH (3) – * AB */CD – + FGH (4) – * AB/* CD + – FGH	ce 1	5	(1 (3 6. A 7. W sh (1	<pre>main (){ print ("%.0f", 2.89); print ("%.0f", 2.89); 2.890000 (2) 2.89) 2 (4) 3 ns: (4) /hich type of function among the following nows polymorphism?) Inline function</pre>
53.54.54.	Ans: (1)The common method used to store a graphis(1) Digraph(2) Stack(3) Adjacency Matrix(4) Linked listAns: (3)	1	5 S	(2 (3 (4 7. A ol: O sh fu w) Virtual function) Undefined function •) Class member functions ns: (2) nly virtual functions among these can now polymorphism. Class member functions can show polymorphism too but the should be sure that the same function is

		13	Digital Assistant _ Question & Solutions
	being overloaded or is a function of abstract class or something like this, since we are not sure about all these, we can't say whether it can show polymorphism or not.		 61. How many IP addresses are available to a company with a class 'B' address? (1) 8192 (2) 16384 (3) 32768 (4) 65536 61. Ans: (4)
58.	Select emp_name from department where dept_name LIKE Computer Science; Which one of the following has to be included in the blank to select the dept_name which has Computer Science as its ending string?		 Sol: For class B network least significant 16 bits of IP(V₄) (32 bits) address are for Host ID. Then maximum possible IP addresses in class B is 2¹⁶.
58. Sol: 59.	(1) % (2) – (3) \parallel (4) \$ Ans: (1) % sign indicates 0 or many characters. The number of attributes in a relation is called as its	R	 62 layer of OSI model is responsible for the process-to-process delivery of the entire message. (1) Data link Layer (2) Network Layer (3) Transport Layer (4) Session Layer
	(1) Cardinality(2) Degree(3) Tuples(4) Entity		Sol: Transport layer provide communication
59. Sol:	Ans: (2) The number of attributes of a relation is called a degree of a relation. Since	ce 1	63. A cathode ray tube converts(1) Voltage into current
60.	 Start and stop bits are used in serial communication for (1) Error detection (2) Error correction (3) Synchronization (4) Slowing down the communication 		 (2) AC voltage into DC voltage (3) DC voltage into AC voltage (4) Electrical signals into visual signals 63. Ans: (4) Sol: When electron gun generates electron beam it gets accelerated and then goes and strikes
<mark>60.</mark> Sol:	(4) Slowing down the communicationAns: (3)In Asynchronous transmission, every character is preceded by a start bit and followed by one or more stop bits.		phosphor coating provided behind fluorescent screen. Due to phosphor excitation visible light will be produced.

	ACE Engineering Publications	14			Panchay	at Secretary Gr. V	/I
64.	Figure of merit of a receiver is given as (1) $\frac{(\text{SNR})_{o}}{(\text{SNR})_{I}}$ (2) $\frac{(\text{SNR})_{i}}{(\text{SNR})_{o}}$ (3) $(\text{SNR})_{i}(\text{SNR})_{o}$ (4) None of the above	6	7. 7.	Which of of digital (1) Great (2) Great (3) Easie (4) Less Ans: (4)	f the following l modulation? ter noise immuni ter security er multiplexing band width requ	is <i>not</i> an advant ity irement	age
64.	Ans: (1)	S	ol:	Digital	modulation	requires m	ore
Sol: 65.	Figure of merit of a receiver (FOM) $= \frac{S_o / N_o}{S_i / N_i} = \frac{(SNR)_o}{(SNR)_i}$ Noise factor = $\frac{S_i / N_i}{S_o / N_o} = \frac{(SNR)_i}{(SNR)_o}$ Mixing is used in communication to (1) Raise the carrier frequency (2) Lower the carrier frequency (3) Alter the deviation (4) Change the carrier frequency to any required value		G 8.	bandwidd is not an The mos power sy transform (1) Star - (2) Delta (3) Star - (4) Star - (4) Star -	 h. So, less ban a advantage of di st commonly us ystems as step- mers are Delta, Star – Star Star, Star – D Star, Delta – D Delta, Delta – Star 	dwidth requirem gital modulation ed connections -up and step-do car elta elta Star	for
65.	Ans: (4) Since	ce 19	ol:	If transfo	ormation ratio of	transformer is x	: 1
Sol:	Mixer is used to change the carrier frequency.			Conne ctions	Line Voltages	Secondary Voltage	
66.	What device is used to demodulate a time			Δ - Δ	$V_1: rac{V_1}{x}$	100%	
	division multiplexed analog wave?(1) High pass filter(2) Low pass filter			Y – Y	$V_1: \frac{V_1}{x}$	100%	
66.	(3) Band stop filter (4) Band pass filter Ans: (2)			Δ - Υ	$V_1: \sqrt{3} \ \frac{V_1}{x}$	173%	
Sol:	A low pass filter is used to demodulate a TDM analog wave	L		Υ - Δ	$V_1: \frac{V_1}{\sqrt{3}x}$	57%	

Engineering Publications	15	Digital Assistant _ Question & Solutions
 The Δ/Y transformer connection offers highest secondary terminal voltage (73% more) among all the Transformer connections for the same applied voltage and turns ratio. The Y/ Δ transformer connection produces 42.3% less terminal voltage when compared to Δ/Δ (or) Y/Y connections. 69. In general daily applications, the electrical fan operates with a induction 		 speed but the rotor couldn't able to catch the quick reversal as that of the stator poles due to mechanical inertia of the rotor. Then the stator is subjected to clockwise torque and counter clockwise torque. Therefore average torque is equal to zero during starting condition. Hence synchronous motor is not self starting. 71. In series circuits, the expression for quality
motor. (1) Single phase (3) Three phase (4) Poly phase (5) Ans: (1)	R //	factor is (1) f_r (2) Band Width (BW) (3) f_r/BW (4) BW/f_r 71 Ans: (3)
Sol: Single phase induction motors are small rating induction motors, so these are called fractional KW induction motors. These are used for domestic purpose.		Sol: Series RLC circuit – Series Resonance $ \begin{array}{c} \downarrow \\ + \\ V_{R} \\ - \\ + \\ V_{L} \\ - \\ 0 \\ \hline \end{array} $
 70. Synchronous motors are generally not self-starting as the direction of rotation is not fixed the direction of instantaneous torque reverses after half cycle the starters cannot be used on these machines starting winding is not provided on these machines 		Z N/W is in S.S. S $\omega = \omega_0 \Rightarrow I = \frac{V}{R} = I_m$ (:: LC combination is like a short circuit) $\omega = \infty \Rightarrow I = 0$ I_m I_m $\frac{I_m}{\sqrt{2}}$
70. Ans: (2)Sol: In brief, when the supply is given to the stator, the stator poles rotate at synchronous	5	$\begin{array}{c c} & & & \\ \hline 0 & f_L & f_0 & f_H & f \\ & & & \\ & & & \\ \hline & & & \\ \end{array} $



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	ACE Engineering Publications	17		Digital Assistant _ Question & Solutions
	$B \cdot W = f_{H} - f_{L} = \frac{f_{0}}{Q}$ $Q = \frac{f_{0}}{D W}$		7	'5. Paging involves breaking logical memory into blocks of same size called as (1) Pages
	B. W Where $Q = \frac{\omega_0 L}{R} = \frac{1}{\omega_0 CR}$			(2) Segments(3) Fragments(4) Frames
72.	Zener diode is used as (1) Rectifier		7:	'5. Ans: (1)
	(2) Amplifier(3) Regulator(4) Oscillator	ERI	7 N	6. The desirable criteria for CPU scheduling algorithm is(1) Maximize CPU utilization and
72. Sol:	Ans: (3) Zener diode is used as regulator			Minimize response time (2) Maximize CPU utilization and Maximize response time
73.	 The cross over distortion is due to (1) Power supply fluctuation (2) Cut-in voltage of transistor (3) Bias voltage (4) Input signal 		7	 (3) Minimize CPU utilization and Minimize response time (4) Minimize CPU utilization and Maximize response time 26. Ans: (1)
73. Sol:	Ans: (2) Sin Cross-over distortion is due to cut-in voltage of transistor.	ce 1	97	 7. Round Robin Scheduling (1) allows interactive tasks quicker access to the processor
74.	 A process generates I/O requests infrequently using more of its time doing computations. (1) I/O bound (2) Swapped (3) Mixed (4) CPU-bound 	5	7'	 (2) is quite complex to implement (3) gives each task the same chance at the processor (4) allows processor-bound tasks more time in the processor 7. Ans: (3)
74. ace 1	(4) CPU-bound Ans: (4) Engineering Publications Hyderabad • Delhi • Bhopal • Pune • Bhubaneswa	r • Luckno	ow 4	• Patna • Bengaluru • Chennai • Vijayawada • Vizag • Tirupati • Kolkata • Ahmedabad

	18	Panchayat Secretary Gr. VI
78 approach structures operating system by removing all	the non-	assign it's equivalent number in hexadecimal representation.
essential components from the kernel	and	
implementing them as system and user-	level	81. How many AND gates and OR gates are
programs.		required to realize $Y = CD + EF + G?$
(1) Monolithic kernel		(1) 3 OR gates, 2 AND gates
(2) Micro kernel		(2) 2 OR gates, 2 AND gates
(3) Macro kernel		(3) 3 OR gates, 3 AND gates
(4) Mini kernel		(4) 1 AND gates, 3 OR gates
78. Ans: (2)	DU	81. Ans: (2)
JGIN	VEEKI	Sol: $Y = CD + EF + G$
79. Which of the following Gates are use	ed as	40
basic building blocks ?		
(1) AND, OR and NOT		
(2) NAND and NOR		F G
(3) X-OR and X-NOR		
(4) AND and NAND		Two OR gates and two AND gates are
79. Ans: (1)		required.
Sol: AND, OR and NOT are used as	basic	
building blocks.	Sinco 1	82. The number of bits in operation code
		required for a computer with 64 distinct
80. Convert binary to Hexadeo	cimal	operations is
(111111110010)2		(1) 64 (2) 06
(1) (EE 2) ₁₆ (2) (FF 2) ₁₆		(3) 32 (4)05
$(3) (EF 2)_{16} \qquad (4) (FD 2)_{16}$		82. Ans: (2)
80. Ans: (2)		Sol: Number of distinct operation with 'n'
Sol: binary - 1111 1111 0010		number of bits $= 2^{n}$.
Hexadecimal - F F 2		So $2^{n} = 64$
Binary to hexadecimal conversion	was	n = 6
done by grouping 4 digits in bi	inary	
representation from right to left	and	

	ACE Engineering Publications	19		Digital A	Assistant _	Question & S	olutions
83.	The operation performed in each clock pulse is called (1) Micro operation	;		Operand is opposited in i	obtained in instruction	directly from	address
	(2) Micro instruction		86.	Reverse Polis	sh notatior	n is often call	ed
	(3) Micro program			(1) Postfix			
	(4) Macro instruction			(2) Prefix			
83.	Ans: (1)			(3) Infix			
Sol:	Micro operation means operations	5		(4) None of t	he above		
	performed in one clock pulse.		86.	Ans: (4)			
84.	converts the programs written in	RI/	87.	Prefix of A-l	B/C * D \$	E is	
	Assembly language into Machine language.			(1) –/*\$ ACE	BDE		
	(1) Compiler (2) Interpreter			(2) /-ABCD	*\$DE		
	(3) Linker (4) Assembler			(3) –A*/BC\$	DE		
84.	Ans: (4)			(4) – A/BC*\$	DE		
Sol:	Assembly language programs are translated	1	87.	Ans: (3)		1	
	into machine language by assembler.						
			88.	Main()			
85.	The address of operand's address is	5	<				
	available in instruction. This address mode	-e 1	00	int I = 5;	;		
	is called as			print f("	'%d", I = +	++I = = 6);	
	(1) Direct Addressing mode						
	(2) Register Addressing mode			The output is	5		
	(3) Register Indirect Addressing mode			(1) 1 (2	2) 5	(3) 6	(4) 0
	(4) Indirect Addressing mode		88.	Ans: (1)			
85.	Ans: (4)						
Sol:			89.	By default an	ny real nu	mber in 'C' i	s treated
[Address Memory			as			
l	operand			(1) a float		(2) a double	e
	address			(3) a long do	uble	(4) a real	
			89.	Ans: (2)			
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	ACE Engineering Publications	21	Digital Assistant _ Question & Solutions
90. 90.	Which of the following operators cannot be overloaded? (1) [] (2) -> (3) ? : (4) * Ans: (3)		 94. Which protocol is used to convert IP address to MAC address? (1) IP (2) RARP (3) <i>ln</i> ARP (4) ARP 94. Ans: (4)
 91. 91. Sol: 92. 92. 	Minimal super key is otherwise known as (1) Candidate key (2) Foreign key (3) Primary key (4) Unique key Ans: (1) Minimum super key is called candidate key. A rectangle in an entity-relationship diagram represents (1) Attributes (2) Tables (3) Entity sets (3) Database Ans: (3)		 Sol: ARP (Address Resolution Protocol) used to map IP (logical) address into MAC (physical) address. 95. Class has the greatest number of hosts per given network address. (1) B (2) A (3) D (4) C 95. Ans: (2) Sol: In class A 24 bits host ID, class B 16 bits host ID and In class C 8 bits host ID In class A maximum possible no. of hosts
93. 93. Sol:	 Baud means the (1) Number of bits transmitted per unit time (2) Number of bytes transmitted per unit time (3) Rate at which the signal changes per second (4) None of the above Ans: (3) Rate at which the signal changes per second. Baud Rate = No. of signals changes per sec. 		 96. In a CRO, the intensity control regulates the Voltage applied to the cathode Voltage applied to the focusing anode Voltage applied to the accelerating anode Voltage applied to the control grid 96. Ans: (4) Sol: Intensity control varies control grid potential and in turn varies brightness of image displayed.





- Fig: Cathode Ray Tube
- 97. Thermistors have
 - (1) Positive temperature coefficient
 - (2) Negative temperature coefficient
 - (3) Zero temperature coefficient
 - (4) Infinite temperature coefficient

97. Ans: (2)

98. The expression for band width (BW) of a PCM system, where 'v' is the number of bits/sample and f_m is modulating frequency, is given by

(4) BW \geq vf

(1)
$$BW \ge \frac{1}{2vf_m}$$
 (2) $BW \le vf_m$ Since

(3) BW $\ge 2vf_m$

98. Ans: (4)

Sol: Bandwidth of PCM for v-bit encoder is

$$BW \ge \frac{vt}{2}$$

But $f_s = sampling frequency = 2f_m$

 $\Longrightarrow BW \geq vf_m$

99. The number of reflectors in Yagi-Uda antenna is/are

(1) One	(2) Two
(3) Three	(4) Four

- 99. Ans: (1)
- **Sol:** A Yagi-Uda antenna is a directional antenna consists of a driven element, a single reflector and one or more director.
- 100. The back emf of a dc motor is zero when
 - (1) The motor is running at its rated speed
 - (2) The motor is running at 80% of its rated speed
 - (3) The motor is about to start
 - (4) The motor is running at 20% of its rated speed

100. Ans: (3)

Sol:
$$E_b = \frac{\phi ZNP}{60A}$$

At starting, speed N = 0,

- then back emf is zero.
- 101. Which of the following is a primary source of energy in a nuclear power station?
 - (1) Uranium (2) Lignite
 - (3) Peat (4) Natural gas
- 101. Ans: (1)
- **Sol:** The primary source of energy in a nuclear power station is uranium

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22

	ACE Engineering Publications	23	Digital Assistant _ Question & Solutions
102.	Which of the following types of plates is	5	condenses to water and is injected back
	used as an earthing electrode?		into the ground to be used again. Most
	(1) Aluminium (2) Galvanized Iron	ı	geothermal power plants are flash steam
	(3) Steel (4) Brass		plants.
102	Ans: (2)		Binary cycle power plants transfer the
Sol:	Plate Earthing System: In this type of	f	heat from geothermal hot water to another
	system, a plate is made up of copper or G	[liquid. The heat causes the second liquid to
	(galvanized iron) which are placed	1	turn to steam, which is used to drive a
	vertically in the ground pit less than	ı	generator turbine.
	3meters from the earth. For a better	r	
	electrical grounding system, one should		104. Find the value of V, if the current in the 3
	maintain the earth moisture condition	ı	Ω resistor is zero (0 Amp).
	around the plate earthing system.		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
103.	Which of the following is used to generate		
	power in a geothermal station?		$5 V + \frac{1}{T} = \frac{1}{2} \Omega = \frac{1}{T} V$
	(1) Heat in the air		
	(2) Heat in the Ionosphere		
	(3) Heat inside the Earth		(1) 3.5 V (2) 6.5 V
	(4) Heat of the Sun		(3) 7.5 V (4) 8.5 V
103.	Ans: (3)		104. Ans: (3)
Sol:	3-types of geothermal power plants:		Sol: $1\Omega V_a 3\Omega V_b 5\Omega$
	Dry steam plants use steam directly from	ı	
	a geothermal reservoir to turn generator	r	$ \begin{array}{c} \nabla V \\ \hline T \end{array} \qquad \begin{cases} 2 \Omega \end{array} \qquad \begin{cases} 4 \Omega \end{array} \frac{1}{T} \nabla \\ \hline T \end{array} $

a geothermal reservoir to turn generator turbines. The first geothermal power plant was built in 1904 in Tuscany, Italy, where natural steam erupted from the earth.

Flash steam plants take high-pressure hot water from deep inside the earth and convert it to steam to drive generator turbines. When the steam cools, it In question given that, the current in the 3Ω resistor is zero i.e $V_a = V_b$

$$\frac{5 \times 2}{2+1} = \frac{V \times 4}{4+5}$$
$$\implies V = 7.5 \text{ volt}$$

ACE Engineering Publications

- 105. In superposition theorem, while considering the effect of one voltage source.
 - All other current sources are open circuited and voltage sources are short circuited
 - (2) All other current and voltage sources are open circuited
 - (3) All other current and voltage sources are short circuited
 - (4) All other current sources are short circuited and voltage sources are open circuited

105. Ans: (1)

Sol: Superposition theorem

- In a linear network with several independent sources, the response in a particular branch when all the sources are acting simultaneously is equal to the linear sum of individual responses calculated by taking one independent source at a time.
- All the ideal voltage sources are eliminated from the network by shorting the sources, all the ideal current sources are eliminated from the network by opening the sources and do not disturb the dependent sources present in the network.

- 106. When voltage feedback (Negative) is applied to an amplifier, its input impedance
 - (1) is decreased
 - (2) is increased
 - (3) remains the same
 - (4) None of the above

106. Ans: (2)

- **Sol:** When voltage feedback is applied to an amplifier, its input impedance increases.
 - G Because the feedback is series-shunt feedback.
- 107. What is responsible for upper 3-dB frequency in frequency response of amplifier with transistor?
 - (1) Internal capacitance of transistor
 - (2) Bypass capacitance
 - (3) Coupling capacitors
 - (4) Both bypass and coupling capacitors

107. Ans: (1)

- Sol: Because of Junction capacitance (or) internal capacitance of transistor the gain will drop at upper 3-dB frequency in frequency response of amplifier.
- 108. CPU scheduler is also known as
 - (1) Long term scheduler
 - (2) Job scheduler
 - (3) Short term scheduler
 - (4) Medium term scheduler

108. Ans: (3)

	ACE Engineering Publications	25		Digital Assistant _ Question & Solutions
109.	Which among the following statements	5	Sol:	Given binary 1100101.001010
	is/are true related to dynamic loading?			To convert to octal number system group 3
	A. A routine is not loaded until it is	5		digits into 1 digit.
	called			
	B. Unused routine is never loaded			$So = \frac{001}{1} \frac{100}{4} \frac{101}{5} \cdot \frac{001}{1} \frac{010}{2}$
	C. Requires special support from the	e		1 4 5 . 1 2
	operating system		112.	If $(84)_x$ is equal to $(64)_y$ where x and y
	(1) A only (2) A and B only			represent base 'x' and base 'y' number
	(3) B and C only (4) A, B and C			systems respectively, what could be the
109.	Ans: (4)			possible values of x and y?
	GINE	EKI/	VG	(1) $x = 12$ $y = 9$
110.	For a number system, with base n, the	•		(2) $x = 6$ $y = 9$
	number of different symbols in the number	r		(3) $x = 12$ $y = 18$
	system will be			(4) $x = 9$ $y = 12$
	(1) $n - 1$ (2) n		112.	Ans: (4)
	(3) $n + 1$ (4) $2n$		Sol:	$(84)_{\rm x} = (64)_{\rm y}$
110.	Ans: (2)			8x + 4 = 6y + 4
Sol:	For base-n number system the number of	f		8x = 6y
	different symbols in that system are 'n'.		\leq	From the options, for $x = 9 \& y = 12$ the
	Ex:- for base-8(octal) number system numbers available in the octal number	če 1	99	above equation is satisfied.
	system are 0,1,2,3,4,5,6,7. So, number of	f	113.	When the subroutine is called, then address
	different symbols in the number system is	5		of the instruction following the CALL
	8.			instruction is stored in the
				(1) Stack
111.	The octal equivalent of (1100101.001010)	2		(2) Program Counter
	is			(3) Accumulator
	(1) 624.12 (2) 145.12			(4) Subroutine register
	(3) 154.12 (4) 145.21		113.	Ans: (1)
111.	Ans: (2)		Sol:	Stack is used to hold the address of
				instructions during subroutine.





(Previous Questions With solutions, Subjectwise & Chapterwise) UPSC CIVIL SERVICES EXAMINATION



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	ACE Engineering Publications	27		Digital Assistant _ Question & Solutions
114.	 Interrupt driven I/O (1) has its main drawback in the software overhead of interrupts (2) may be better than busy waiting I/O, since, less hardware support is required (3) is equal or faster than DMA for a signal word register (4) Both (1) and (3) 	, , ,	117.	<pre>i = 20 printf("%d", i); } The output of the above program is (1) 20 (2) 0 (3) Error, i undefined (4) Garbage value Ans: (3)</pre>
114.	Ans: (4)	RI	118.	main ()
115.	The maximum number of nodes at level 'i' of a binary tree is (1) 2^{i-1} , $i \ge 0$ (2) 2^{i} , $i \ge 0$ (3) 2^{i+1} , $i \ge 1$ (4) 2logi, $i \ge 1$ Ans: (2)	,		<pre>{ Int a = 6, b = 10, x; X = a&b printf("%d", x); } The value of x is (1) 2 (2) 10 (3) 5 (4) 7</pre>
115.	Evaluate the following postfix notation $A : 6 = 0.2 + * 12.3/$	ce 1	118. 119.	Ans: (1) What are the elements present in the arra of the following 'C' code : int array [5] = [5]; (1) 5, 5, 5, 5, 5 (2) 5, 0, 0, 0, 0
	(1) 62 (2) 66 (3) 83 (4) 72			
116.	Ans: (1)		110	(3) Compilation error(4) Declaration error
117.	main () { extern int i;		119.	Ans: (2)

	ACE Engineering Publications	28		Panchayat Secretary Gr. VI
120.	In C++, which of the following access	5	124.	Public key cryptography is also called
	specifier is used as a default in a class	5		(1) Single key cryptography
	definition?			(2) Symmetric key cipher
	(1) Protected			(3) Asymmetric cipher
	(2) Public			(4) Conventional cryptography
	(3) Private		124.	Ans: (3)
	(4) Friend		Sol:	In public (asymmetric) key cryptography
120.	Ans: (3)			two different keys (public and private) key
				is used for encryption and decryption.
121.	Independent multi-valued dependences car	1		
	be eliminated in	ERII	125.	Which layer of OSI model is responsibl
	(1) Boyce-Codd Normal Form			for compression and decompression o
	(2) Third Normal Form			data?
	(3) Fourth Normal Form			(1) Application layer
	(4) Fifth Normal Form			(2) Presentation layer
121.	Ans: (3)			(3) Session layer
				(4) Transport layer
122.	The union operation automatically	7	125.	Ans: (2)
	unlike the select clause.		Sol:	In OSI model, compression and
	(1) Adds tuples	ce 1	99!	decompression of data are responsibility of
	(2) Eliminates unique tuples			presentation layer.
	(3) Adds common tuples			H.
	(4) Eliminates duplicates		126.	Input impedance of an electronic voltmete
122.	Ans: (4)			is
				(1) Low (2) High
123.	Length of Ethernet address isbytes.			(3) Medium (4) Zero
	(1) 2 (2) 4		126.	Ans: (2)
	(3) 6 (4) 16		Sol:	Because it consists of an amplifier at input
123.	Ans: (3)			side, so input impedance is high.
Sol:	Ethernet (MAC) address \Rightarrow 48 bits			
	Size of Ethernet (MAC) address \Rightarrow 6 bytes			

	29		Digital Assistant _ Question & Solutions
127. What will be frequency of the signal Asin $(4\pi t + \phi)$? (1) 2 Hz (2) 0.5 Hz (2) 4 Hz (4) 0.25 Hz	1	So	I: Due to lossy cable or attenuator, noise figure increases. So, the figure of merit is decreases.
(3) 4 Hz (4) 0.25 Hz 127. Ans: (1) Sol: $Asin(2\pi ft + \phi) = Asin(4\pi t + \phi)$ $\Rightarrow f = 2Hz$		13	 A transformer is a device used to (1) Convert energy (2) Generate energy (3) Change the level of energy
128. The modulation index in Frequency Modulation (FM) is defined as (1) Ratio of frequency deviation to the modulating frequency (2) Ratio of frequency deviation to the carrier frequency (3) Ratio of carrier frequency to the frequency deviation (4) Ratio of modulation frequency to the frequency deviation 128. Ans: (1) Sol: Modulation index in FM defined as the ratio of frequency deviation to the modulating signal frequency $\beta = \frac{\Delta f}{f_m}$		13 So 13	utilization (4) Transmit the energy at same level (4) Transmit the energy at same level (5) Ans: (4) 1: As Transformer transfers same amount of power from primary circuit to secondary circuit, it can be treated as constant power device. (If we consider time duration, Energy levels are same for one circuit to another circuit) 1. Which of the following is the correct representation of the regulation of a transformer? (1) $\frac{V_{2_{fullload}} - V_{2_{no load}}}{V_{2_{fullload}}} \times 100$
 129. The figure of merit in superheterodynareceiver can be decreased only by (1) having first stage as Mixer (2) having first stage as Attenuator (3) having first stage as Amplifier (4) having first stage as Filter 	6		(2) $\frac{V_{2_{fullload}} - V_{2_{no load}}}{V_{2_{no load}}} \times 100$ (3) $\frac{V_{2_{no load}} - V_{2_{full load}}}{V_{2_{full load}}} \times 100$ (4) $\frac{V_{2_{no load}} - V_{2_{full load}}}{V_{2_{no load}}} \times 100$
129. Ans: (2) ACE Engineering Publications Hyderabad • Delhi • Bhopal • Pune • Bhubaneswa	r • Luckno	13 	 Ans: (4) Patna • Bengaluru • Chennai • Vijayawada • Vizag • Tirupati • Kolkata • Ahmedabad

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Sol: Regulation down =
$$\left(\frac{V_1^1 - V_2}{V_1^1}\right)$$

Regulation up =
$$\left(\frac{V_1^1 - V_2}{V_2}\right)$$

Where, $V_1^1 =$ No load voltage and

 $V_2 =$ Full load voltage.

Note: Unless and otherwise specified, regulation in the sense regulation down only.

- 132. The armature core of a DC machine is made up of
 - (1) Solid aluminium
 - (2) Laminated aluminium
 - (3) Solid steel
 - (4) Laminated steel
- 132. Ans: (4)
- **Sol:** Armature core is made with silicon steel. Core is laminated to reduce the eddy current loss since armature current is alternating.
- 133. The direction of generated EMF is determined by
 - (1) Lenz's law
 - (2) Faraday's law of electromagnetic induction
 - (3) Fleming's left hand rule
 - (4) Fleming's right hand rule

133. Ans: (4)

- Sol: The direction of induced emf or current can be find by applying this rule.
 Fore finger ⇒ indicates direction of flux
 Thumb ⇒ indicates direction of motion of conductor
 Center finger ⇒ indicates direction of induced emf or current.
- 134. The power developed by a synchronous motor will be maximum when the load angle is

(1) zero
$$(2) 90^{\circ}$$

(4) 120°

134. Ans: (2) Sol: $P = \frac{EV}{X_s} \sin \delta$

(3) 45°

When, $\delta = 90^\circ$, Power output is maximum.

135. In the given half wave rectifier circuit with sinusoidal input, having ideal diode and load R_L , the DC current flowing through the circuit is I_{dc} . Calculate the DC voltage across ideal diode.







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	ACE Engineering Publications	33		Digital Assistant _ Question & Solutions		
141.	Consider the equation $(136)_8 = (a4)_b$ with	1	143.	Ans: (4)		
	'a' and 'b' as unknown values. The	;	Sol:	2's complement of 0101101 is 1010011		
	possible values of 'a' and 'b' can be			1011001		
	(1) $a = 10, b = 9$			$(+)\frac{1010011}{0101100}$		
	(2) $a = 2$, $b = 15$			(EAC)		
	(3) $a = 3$, $b = 11$			As end around carry is present so, the		
	(4) $a = 11$, $b = 3$			result is positive.		
141.	Ans: (*)					
Sol:	$(136)_8 = (a4)_b$		144.	Which of the following statements is true ?		
	$1 \times 8^2 + 3 \times 8^1 + 6 \times 8^0 = \mathbf{a} \times \mathbf{b}^1 + 4 \times \mathbf{b}^0$			S1: The dual of NAND function is NOR		
	64 + 24 + 6 = ab + 4		VC.	S2: The dual of XOR function is XNOR		
	94 = ab + 4			(1) Only S1 is true		
	ab = 90			(2) Only S2 is true		
	From the given options for $a = 10$, $b = 9$			(3) Both S1 and S2 are true		
	will satisfy the above equation.			(4) Both S1 and S2 are false		
	If the base is 9 the number 'a' lies between 0)	144.	Ans: (3)		
	to 8. So, no option is correct.		Sol:	The dual of NAND function is NOR		
			$\overline{AB}(NAND) = \overline{A} + \overline{B} = \frac{dual}{A} = \overline{A} + \overline{B}(NOR)$			
142.	An example of error correcting code is (1) Parity check		$\langle \rangle$			
			1995The lock of YOP for stion is YNOP			
	(2) Hamming code					
	(3) BCD			$\mathbf{A} \oplus \mathbf{B}(\mathbf{XOR}) = \mathbf{A} \mathbf{B} + \mathbf{A} \mathbf{B}$		
	(4) Gray code			$\xrightarrow{\text{dual}} (\overline{A} + B)(A + \overline{B}) = \overline{A} \overline{B} + AB(XNOR)$		
142.	Ans: (2)			∴ S2 is true		
Sol:	Hamming code is an example for error	•				
	correcting code.		145.	holds the address of the next		
				instruction to be executed.		
143.	Subtracting (0101101) ₂ from (1011001) ₂	2		(1) Accumulator		
	using 2's complement, the result is			(2) Program counter		
	(1) 0111001 (2) 0110110			(3) Address register		
	(3) 0101111 (4) 0101100			(4) Instruction register		
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145. Sol:	Ans: (2) Program counter is a pointer register that holds address of the next instruction to be executed	t	148.	A computer with cache access time of 100 nsec, and main memory access time of 1000 nsec and a hit ratio of 0.9 produces an average access time of
146.	The sequence of operations performed by CPU in processing an instruction constitutes a/an cycle. (1) Instruction (2) Interrupt (2) Fatah (4) Masking	7	148. Sol:	(1) 200 nsec (2) 400 nsec (3) 550 nsec (4) 1000 nsec Ans: (1) Average memory access time = Hit ratio×Cache access time + miss
146. Sol:	Ans: (1) Instruction cycle means the time taken to process a complete instruction.	R /	NC.	ratio×[cache access time+main memory access time] = $0.9 \times 100 + 0.1(100 + 1000)$ = $90 + 110$
147.	Which of the following data transfer is used for data transfer without the role of processor ? (1) Synchronous (2) Asynchronous (3) Direct Memory Access (4) Interrupt driven	f ce 1	149. 149.	= 200 nsec The best case running time of Bubble sort is (1) O (n log n) (2) O (n) (3) O (log n) (4) O (n ²) Ans: (2)
147. Sol:	Ans: (3) DMA is a method that allows an input/output device to send or receive data directly to or from the main memory by passing the CPU to speedup memory operations.		150. 150.	A complete binary tree with 'n' nodes is represented sequentially. Then for any nodes with index i, the left child is at (1) 2 i (2) $2i + 1$ (3) $i + 2$ (4) $2i + 2$ Ans: (1)





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