

Roll No.

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14

TEST CODE: PPAEEC SIII**Question Paper**

Electronics & Communications, General Awareness,
Reasoning and English

Question Booklet No.

1404252

Time Allowed : 2 Hrs.

Max. Marks : 100

DO NOT OPEN THE PAPER SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO**INSTRUCTIONS FOR CANDIDATE**

1. This Question-Booklet contains 100 Questions on the following :-

Section	Subject	Q. No.	Total Ques.
Part-I	Electronics & Communications	1-60	60
Part-II	General Awareness, Reasoning and English	61-100	40
	Total Questions		100

- There are 16 pages in this Booklet out of which Page No. 1 is for instructions to the candidates. Page Nos. 15 and 16 are meant for Rough Work and page nos. from 2 to 14 contain question of all parts. After opening of the Booklet and before you start answering the questions you must check up this booklet and ensure that it contains all the pages (1-16) and see that no page is missing or repeated. If you find any defect in this booklet, you must get it replaced immediately from the Invigilator within first 10 minutes of start of the Examination.
- You must write you Roll Number in the space provided on the top left had side of Page No. 1 of this Question-Booklet.
- You will be supplied a one-page OMR Answer-Sheet separately by the Invigilator. You must complete all the details at appropriate places in the OMR Answer-sheet carefully, before you actually start answering the questions.
- The instructions as given on the OMR Answer-sheet, must be read carefully by the candidate and action in filling up the desired information in the columns writing a statement and marking the answer to the questions by Pen on Side I and Side -II of the OMR Answer-Sheet should be taken accordingly.
- All questions are compulsory. Each question carries one mark. There is **negative marking**; $1/4^{\text{th}}$ mark will be deducted for each wrong answer.
- You are required to mark you answers only on the OMR Answer Sheet which has been provided to you separately with **BLACK BALL POINT PEN ONLY**.
- Use of Books, Notes and copying and receiving/giving assistance is not allowed. Further, use of calculator-separate or with watch, Tablets any type of mobile phones, Books, slide rules, foot rules, note books or written notes is also prohibited during the examination. Any candidate who is found either copying or receiving, giving assistance or using unfair means will be disqualified and his/her candidature will accordingly be cancelled.
- The question booklet and OMR Answer Sheet supplied to the candidate must be returned intact to the room invigilator on completion of examination before you leave examination hall. Any candidate trying to tamper, take them away or found in unauthorized possession of booklet or OMR Answer sheet, is liable for cancellation of candidature or any legal action against him/her.

Electronics & Communications

- Q1) TRIAC is an ac switch which can be made to conduct on :-
a) both half cycles of an ac voltage b) only positive half cycle
c) only negative half cycle d) none of the above
- Q2) X.25 protocol is a structured protocol that has :-
a) 7 layers b) 5 layers
c) 3 layers d) 2 layers
- Q3) In 802.3 Mac layer protocol frame starts with a preamble which allows the receiver's clock to synchronize with the transmitter's clock. The preamble consist of :-
a) 2 or 6 bytes b) 7 bytes
c) 4 bytes d) 1 byte
- Q4) The central limit theorem indicates that the probability density of a sum of N independent random variables tends to approach a :-
a) Rayleigh distribution as N increases
b) Gaussian distribution as N increases
c) Gaussian distribution as N decreases
d) Uniform distribution as N increases
- Q5) Linear predictive code is widely used in :-
a) speech and video compression
b) speech coding to reduce the bandwidth
c) low bit rate data communication
d) DPCM system
- Q6) The distance between the two binary codes $U = 100101101$ and $V = 011110100$ is :-
a) 9 b) 5 c) 6 d) 7
- Q7) In an ac tachometer, the two stator field coils are mounted :-
a) side by side on a same line
b) along two parallel lines and opposite to each other
c) in space quadrate
d) at an angle of $\pi/3$ between each other

PPAEEC'S III

- Q8) Control systems are generally designed with damping :-
 a) less than one
 b) greater than one
 c) equal to one
 d) with any value depending upon system requirement
- Q9) In derivative error compensation the output :-
 a) depends on rate of change of actuating signal
 b) is dependent on actuating signal
 c) is proportional to the double derivative of the actuating signal
 d) is directly proportional to the actuating signal
- Q10) In root locus plot, a point on the real axis lies on the locus, if the number of open loop poles plus zeros on real axis to the :-
 a) left of the point is odd b) left of the point is even
 c) right of the point is odd d) right of the point is even
- Q11) For a stable feedback control system, the phase margin is :-
 a) always positive b) always negative
 c) may be positive or negative d) always greater than 180°
- Q12) Companding is a technique used to achieve :-
 a) uniform quantization b) delta modulation
 c) non uniform quantization d) differential quantization
- Q13) Which of the following is not a cyclic code :-
 a) Hamming code b) BCH code
 c) Rad-solomon code d) Hustman code
- Q14) To design a wide band microwave amplifier one should use :-
 a) Klystron b) TWT
 c) Magnetron d) None of these
- Q15) An AM broadcast radio transmitter radiates 10 KW power. Percentage modulation is 60%. The power in the carrier is :-
 a) 5.00kw b) 7.69kw c) 8.47kw d) 9.17kw

PPAEEC SIII

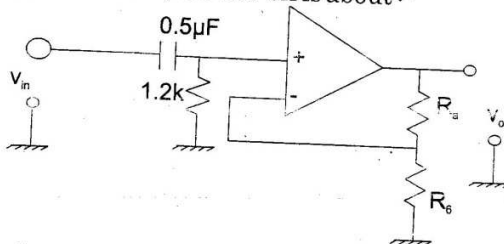
Q16) Pre-emphasis in FM system involves :-
 a) compression of the modulating signal
 b) expansion of the modulating signal
 c) amplification of lower frequency components of the modulating signal
 d) amplification of higher frequency components of the modulating signal

Q17) Companding is used :-
 a) to overcome quantization noise in PCM
 b) in PCM transmitter to allow amplitude within the limit of dynamic range of the signal
 c) to protect small signals in PCM
 d) in PCM receiver to overcome impulse noise.

Q18) The packet size in ATM network is :-
 a) 50 bytes b) 53 bytes c) 57 bytes d) 60 bytes

Q19) How many non-overlapping channels are available in IEEE 802.11b :-
 a) 3 b) 12 c) 23 d) 40

Q20) Refer to the given circuit, the roll-off is about :-



a) -20 db/decade b) -40 db/decade
 c) -60 db/decade d) -80 db/decade

Q21) For a pencil beam antenna the pattern beam-widths are 50° and 70° in the principal planes. The directivity of the antenna is :-
 a) 8.54 db b) 10.7 db c) 11.79 db d) 12.83 db

Q22) The capacity of an analog communication channel with 4KHz bandwidth and 15 db SNR is approximately :-
 a) 08 kbps b) 10 kbps c) 16 kbps d) 20 kbps

PPAEEC SIII

- Q23) The input impedance of a short circuited loss less transmission line of characteristic impedance 50Ω is :-
- a) capacitive
 - b) inductive
 - c) equal to characteristic impedance
 - d) may be capacitive or inductive depending on the length of the line
- Q24) A compact microstrip antenna may be obtained by :-
- a) adding parasitic element
 - b) cutting slot on the patch
 - c) increasing the height of substrate
 - d) using bigger ground plane
- Q25) A SCR fires at a minimum current of 80 mA and -65°C . The minimum current required to fire at 25°C is :-
- a) $> 80 \text{ mA}$
 - b) 80 mA
 - c) $< 80 \text{ mA}$
 - d) 40 mA
- Q26) In a three phase controlled bridge rectifier with an increase of overlap angles the output dc voltage :-
- a) decreases
 - b) increases
 - c) does not change
 - d) depends upon load inductance
- Q27) For Cascode amplifier the output impedance becomes :-
- a) very high
 - b) moderate
 - c) low
 - d) none of the above
- Q28) For a feedback amplifier, if the loop gain is much greater than unity, the closed loop gain will be equal to :-
- a) feedback factor
 - b) inverse of feedback factor
 - c) open loop gain
 - d) inverse of open loop gain
- Q29) A negative feedback loop returning a voltage to the input raised the input impedance and making the circuit a better :-
- a) voltage source
 - b) current source
 - c) voltage sensor
 - d) current sensor
- Q30) Fourier Transform of unit step Function $u(t)$ is :-
- a) $\Pi \delta(w) + \frac{1}{jw}$
 - b) $j \Pi \delta(w) + \frac{1}{\Pi w}$
 - c) $\delta(w) + \frac{j}{\Pi w}$
 - d) $\Pi \delta(w) - \frac{1}{jw}$

PPAEEC SIII

- Q31) An amplifier operating over the frequency range from 18 to 20 MHz has a 10 kilo ohm ($10\text{ K}\Omega$) input resistor. What is the r.m.s noise voltage at the input to this amplifier if the ambient temperature is 27°C :-
- a) 81.2 microvolt (μv) b) 15.3 microvolt (μv)
c) 2.18 microvolt (μv) d) 18.2 microvolt (μv)
- Q32) How many AM broadcast stations can be accommodated in a 300 KHz bandwidth if the highest frequency modulating a carrier is 15 KHz :-
- a) 10 stations b) 11 stations
c) 12 stations d) 15 stations
- Q33) A 25 MHz carrier is modulated by a 400 Hz audio sine wave. If the carrier voltage is 4V and the maximum deviation is 10 KHz, the equation of this modulated wave for FM is :-
- a) $V = 4 \sin(1.57 \times 10^8 t + 25 \sin 2513 t)$
b) $V = 2 \sin(3.14 \times 10^8 t + 12.5 \sin 2513 t)$
c) $V = 4 \cos(1.57 \times 10^8 t + 45 \cos 2513 t)$
d) $V = 4 \sin(1.75 \times 10^4 t + 25 \sin 2513 t)$
- Q34) The Transmission system using two ground plane is :-
- a) Microstrip b) Ellipital wave guide
c) Parallel wire line d) Strip line
- Q35) The transferred electron bulk effect occurs in :-
- a) Gallium Arsenide b) Germanium
c) Silicon d) Metal Semiconductor Junction
- Q36) One of the following diode is suitable for Microwave Power Oscillator :-
- a) Light Emitting Diode (LED) b) Gunn Diode
c) PN Junction Diode d) PIN Diode
- Q37) Indicate which of the following pulse modulation is analog :-
- a) PCM b) DPCM c) PWM d) Delta
- Q38) Quantization Noise occurs in :-
- a) Time Division Multiplex b) Frequency Division Multiplex
c) PCM d) Pulse Width Modulation

A

PPAEEC SIII

- Q39) Indicate which of the following is not a binary code :-
- a) Morse code
 - b) Baudot
 - c) CCITT-2
 - d) ARQ
- Q40) The Hartley Law states that :-
- a) The maximum rate of information transmission depends on the Channel Bandwidth
 - b) The maximum rate of information transmission depends on the depth of modulation
 - c) Redundancy is essential
 - d) only binary code may be used
- Q41) A Doppler Radar operating at 15 GHz is viewing a target moving directly towards it at the speed of 25 m / s. The Doppler frequency shift :-
- a) 2.5 KHz
 - b) 2.4 KHz
 - c) 3 KHz
 - d) 3.5 KHz
- Q42) A rectangular waveguide is 5.1 cm by 2.4 cm (inside dimension). The cut off frequency of the dominant mode is :-
- a) 2 GHz
 - b) 2.94 GHz
 - c) 3 GHz
 - d) 4 GHz
- Q43) The dominant mode in cylindrical waveguide :-
- a) TE_{11}
 - b) TM_{11}
 - c) TE_{10}
 - d) TM_{10}
- Q44) In order to reduce cross sectional dimension, the wave guide to use is :-
- a) circular
 - b) rectangular
 - c) ridged
 - d) flexible
- Q45) A PIN diode is :-
- a) a metal semiconductor point contact diode
 - b) a microwave mixer diode
 - c) often used microwave detector
 - d) suitable for use as a microwave switch
- Q46) Magnetron is type Microwave Tube and Klystron is tubes.
- a) cross field, 'M' type
 - b) cross field, 'O' type
 - c) cross field, 'MO' type
 - d) None of these

PPAEEC SIII

- Q47) The capacity of a standard 4 KHz telephone channel with a 32 dB SNR is :-
- a) 32000 bits / second
 - b) 12000 bits / second
 - c) 32953 bits / second
 - d) 32359 bits / second
- Q48) Principle of Doppler effect is used in :-
- a) MTI Radar
 - b) Basic Pulsed Radar
 - c) CW Doppler Radar
 - d) Both (a) and (c)
- Q49) A voltage (in volts) is given by $u(t) = 12 \cos 2 \Pi \times 2000 t$. The radian frequency is given by :-
- a) 12.57 Krad / second
 - b) 1257 rad / second
 - c) 3.14×10^3 rad / second
 - d) both (a) and (c)
- Q50) A low noise amplifier has an effective noise temperature of 50 k. The absolute noise figure is :-
- a) 1.532
 - b) 1.172
 - c) 1.232
 - d) 2.117
- Q51) In a PCM system, the number of quantization level are 16 and the maximum signal frequency is 4 KHz, the transmission bit rate is :-
- a) 64 bits / sec
 - b) 16 Kbits / sec
 - c) 32 Kbits / sec
 - d) 32 bits / sec
- Q52) In T1 digital system, the frame synchronization code repeats every :-
- a) 1.5 ms
 - b) 125 μ s
 - c) 150 μ s
 - d) 1.2 ms
- Q53) In a microprocessor, the service routine for a certain interrupt starts from a fixed location of memory which cannot be externally set, but the interrupt can be delayed or rejected. Such an interrupt is :-
- a) Non-Maskable and non-vectored
 - b) Maskable and non-vectored
 - c) Non -Maskable and vectored
 - d) Maskable and vectored

- 48
- Q54) A certain SRAM has CS = 0, WE = 0 and OE = 1. In which of the following mode, this SRAM is operating :-
- a) Read
 - b) Write
 - c) Stand By
 - d) None of the above
- Q55) Direction Flag is used with :-
- a) String Instruction
 - b) Stack Instruction
 - c) Arithmetic Instruction
 - d) Branch Instruction
- Q56) To read or write a complete word from / to the memory in 8086 microprocessor, and if it is located at an even address, the number of Read or Write cycles required is :-
- a) One only
 - b) Two
 - c) Three
 - d) Four
- Q57) Hexadecimal equivalent of the decimal number 256_{10} is :-
- a) 102_{16}
 - b) 100_{16}
 - c) 200_{16}
 - d) None of the above
- Q58) The decimal equivalent of a Hexadecimal no. $(F8E6)_{16}$ is :-
- a) $(63,718)_{10}$
 - b) $(67,318)_{10}$
 - c) $(37,718)_{10}$
 - d) None of the above
- Q59) A half adder can be constructed from :-
- a) Two XNOR gates only
 - b) One XOR gate and one OR gate with their output connected in parallel
 - c) One XOR gate and one "AND" gate with their input connected in parallel
 - d) None of the above
- Q60) Electrostatic type instruments are primarily used as :-
- a) Ammeter
 - b) Voltmeter
 - c) Wattmeter
 - d) Ohmmeter

PPAEEC SIII

Q77) Find the odd one out :-

- a) 13 b) 61 c) 97 d) 117

Q78) If 'b' says that his mother is the only daughter of 'a's' mother. How is 'a' related to 'b'?

- a) Son b) Father
c) Maternal uncle d) Grandfather

Q79) Select the one which is different from the other three :-

- a) Week b) Month
c) Fortnight d) Session

Q80) Fill in the blank in square :-

1	16	4
?	256	64
8	32	2

- a) 15 b) 52 c) 128 d) 512

A

ENGLISH

Directions (Q 81 – 85) : Read the passage given below and complete the statements that follow with the help of given options.

Ranji woke up at dawn. It was Sunday. His examination was only two weeks away. He should have been studying. He had other things on mind. He wanted to play one or two games of cricket before he sat down for studying. He was in no mood to study history or algebra. "I want to be a cricketer when I grow up. Maths or history will be of no use to me." His mother was a cricket fan. "You will need maths to calculate your batting averages and you may become part of history one day," she said.

Q81) Ranji woke up

- a) before the sun had risen b) as the sun rose
c) late in the morning d) when his mother called him

53

PPAEEC SIII

- Q82) He woke up at dawn because
 - a) he wanted to study
 - b) he wanted to pray
 - c) he had to go to school
 - d) he wanted to play cricket

- Q83) The other thing on his mind was
 - a) one or two games of cricket
 - b) to study history
 - c) to study algebra
 - d) his mother's love of cricket

- Q84) He did not want to study history because
 - a) he loved to study algebra
 - b) he had no interest in history
 - c) he wanted to become a cricket player
 - d) his mother was a cricket fan

- Q85) Even a cricket player needs maths to
 - a) calculate his batting averages
 - b) calculate the fee he gets for playing
 - c) calculate the daily expenses in his life
 - d) become part of history

Directions (Q 86 – 90) : Complete the sentences given below with the help of options that follow each sentence.

- Q86) Honesty is best policy.
 - a) a
 - b) an
 - c) the
 - d) no article

- Q87) Here is rupee for you.
 - a) a
 - b) an
 - c) the
 - d) no article

- Q88) She is very fond me.
 - a) on
 - b) of
 - c) in
 - d) the

- Q89) I am unanswerable my officer.
 - a) with
 - b) into
 - c) of
 - d) to

- Q90) The car ran an old dog.
 - a) on
 - b) into
 - c) over
 - d) up

PPAEEC SIII

Direction (Q. 91 – 95) : Out of the four alternatives choose the word / phrase that is most nearly the same in meaning as the given word :

Q91) FAITHFUL

- a) disobedient b) loyal c) lawless d) rebellious

Q92) REPLY

- a) answer b) ask c) inquire d) examine

Q93) SOIL

- a) sky b) village c) earth d) sea

Q94) TEACH

- a) guide b) follow c) learn d) imbibe

Q95) UNEASY

- a) disturbed b) calm c) content d) quiet

Direction (Q 96 – 100) : Out of the four alternatives choose the word that is most nearly the opposite to the given word :

Q96) HAPPY

- a) serious b) silent c) bored d) sad

Q97) SMOOTH

- a) risky b) rough c) dangerous d) fatal

Q98) ARRIVAL

- a) return b) coming c) departure d) meet

Q99) REWARD

- a) harmless b) punishment c) coward d) rule

Q100) CHEAP

- a) costly b) less c) enough d) sufficient

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2/1/12

14 PPAEEC SIII

S.No.	Answers	S.No.	Answers	S.No.	Answers	S.No.	Answers
1	A	26	A	51	C	76	B
2	C	27	A	52	B	77	D
3	B	28	B	53	D	78	C
4	B	29	C	54	B	79	D
5	B	30	A	55	A	80	C
6	C	31	D	56	A	81	B
7	C	32	A	57	B	82	D
8	A	33	A	58	A	83	A
9	A	34	D	59	C	84	C
10	C	35	A	60	B	85	A
11	A	36	B	61	D	86	C
12	C	37	C	62	C	87	A
13	D	38	C	63	D	88	B
14	B	39	A	64	B	89	D
15	C	40	A	65	C	90	C
16	D	41	A	66	C	91	B
17	C	42	B	67	C	92	A
18	B	43	A	68	D	93	C
19	A	44	C	69	C	94	A
20	A	45	D	70	D	95	A
21	C	46	B	71	C	96	D
22	C	47	C	72	D	97	B
23	D	48	D	73	C	98	C
24	B	49	A	74	D	99	B
25	D	50	B	75	C	100	A