

Roll No.

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24

TEST CODE: PPSO SII

## Question Paper

Electrical, Mechanical and Safety,  
General Awareness, Reasoning and English  
Time Allowed : 2 Hrs.

Question Booklet No.

2400102

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	Electrical, Mechanical and Safety	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.

## PPSO SII

Electrical, Mechanical and Safety

- Q1) Three resistances  $R_1, R_2, R_3$  are connected in parallel across a DC supply. What will be the ratio of branch currents  $I_1 : I_2 : I_3$ , if the resistances are in the ratio  $R_1 : R_2 : R_3 :: 2 : 3 : 6$  :-  
 a)  $3 : 2 : 6$       b)  $2 : 3 : 6$       c)  $6 : 2 : 4$       d)  $6 : 4 : 2$
- Q2) A resistor  $R$  is measured using the  $V-I$  method in lab. The voltage and current readings are  $10.14 \text{ V}$  and  $5.07 \text{ mA}$  respectively. Which one of the following correctly express the value of resistance?  
 a)  $2 \text{ k}\Omega$       b)  $2.00 \text{ k}\Omega$       c)  $2000 \Omega$       d)  $2.0 \text{ k}\Omega$
- Q3) Three currents  $i_1, i_2, i_3$  are approaching a node. If  $i_1 = 10 \sin(400t + 60^\circ) \text{ A}$  and  $i_2 = 10 \sin(400t - 60^\circ) \text{ A}$ , then  $i_3$  is :-  
 a)  $0 \text{ A}$       b)  $10 \sin(400t) \text{ A}$   
 c)  $-10 \sin(400t) \text{ A}$       d)  $-5 (3 \sin 400t) \text{ A}$
- Q4) If the voltage applied to a transformer primary is increased by keeping the  $V/f$  ratio fixed, then the magnetizing current and core loss will respectively :-  
 a) decrease and remain the same  
 b) increase and decrease  
 c) remain the same and remain the same  
 d) remain the same and increase
- Q5)  $P_1$  and  $P_2$  are the iron and copper losses of a transformer at full load. If the maximum efficiency of the transformer is achieved at 75% of the full load, then what is the ratio of  $P_1$  and  $P_2$ ?  
 a)  $9/16$       b)  $10/16$       c)  $3/4$       d)  $16/9$
- Q6) A  $400 \text{ V DC}$  shunt motor having  $R_a = 0.5 \Omega$  and  $R_f = 200 \Omega$  takes  $5 \text{ A}$  at no-load. What is the ratio of full load speed to no-load speed, when the motor takes  $50 \text{ A}$  on full load?  
 a)  $0.8$       b)  $0.94$       c)  $0.6$       d)  $0.4$
- Q7) A  $220 \text{ V DC}$  machine has an armature resistance of  $1 \Omega$ . If the full-load current is  $20 \text{ A}$ , the difference in induced voltage when the machine is running as a motor and as a generator is :-  
 a)  $20 \text{ V}$       b)  $0 \text{ V}$       c)  $40 \text{ V}$       d)  $60 \text{ V}$

- Q8) Six capacitors of different ratings such as  $C_1 > C_2 > C_3 > C_4 > C_5 > C_6$  are connected in series. The equivalent capacitance will be most near to :
- a)  $C_1$                                       b)  $C_1 + C_2 + C_3 + C_4 + C_5 + C_6$   
c)  $C_6$                                       d)  $C_6$
- Q9) On which of the following cycle does a modern Steam Power Plant work?
- a) Carnot Cycle                                      b) Diesel Cycle  
c) Rankine Cycle                                      d) Bell-Coleman Cycle
- Q10) Which of the following device is used to convert fixed DC to variable voltage and variable frequency AC?
- a) controlled rectifier                                      b) chopper  
c) inverter                                      d) cyclo-converter
- Q11) for an LTI system the impulse response is given by  $h(t) = \delta(t)$ . The step response of the system is given by :-
- a)  $\delta(t)$                                       b)  $u(t)$                                       c)  $t$                                       d)  $e^t$
- Q12) The gain for a system with  $G(s) = 3/[s(s+2)]$  is given by :-
- a) 1.5                                      b) 6                                      c)  $\infty$                                       d) 1
- Q13) For a series RLC circuit, if the voltage across the resistance, inductance and capacitor is 40 V, 70 V and 100 V respectively, then the supply voltage is :-
- a) 210 V                                      b) 70 V                                      c) 50 V                                      d) 230 V
- Q14) In a 3-phase induction motor the value of maximum torque depends upon :-
- a) the rotor resistance                                      b) the stator resistance  
c) number of poles                                      d) standstill rotor reactance
- Q15) The per unit synchronous impedance of a machine is 2.0. Its SCR is :-
- a) 0.5                                      b) 1.414                                      c) 2                                      d) 0.707
- Q16) A synchronous machine has its field on the stator and armature winding on the rotor. Under steady running condition, the air gap field :-
- a) rotates at synchronous speed w.r.t. stator  
b) rotates at synchronous speed w.r.t. state direction of the rotor



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- c) remains stationary w.r.t. rotor  
d) remains stationary w.r.t. stator
- Q17) when two transformers of different kVA ratings are connected in parallel they share the load in proportion to their respective kVA rating only when their :-  
a) efficiencies are equal      b) kVA ratings are equal  
c) per unit impedance are equal      d) equivalent impedances are equal
- Q18) For high voltage low current circuit breaking the most preferred circuit breaker is :-  
a) air blast      b) oil  
c) vacuum      d) any of the above
- Q19) Mertz-price protection scheme can be used for :-  
a) transformer protection      b) alternator protection  
c) feeder protection      d) all of the above
- Q20) Gauge factor for a metallic straight gauge lies in the range of :-  
a) 10-20      b) 2-4  
c) 100-200      d) more than 200
- Q21) What are the main colors of a Danger Tag (Not to operate) ?  
a) Red & White      b) Blue & Green  
c) Black & Yellow      d) Green & Yellow
- Q22) What do the letters A, B and C stand for in the first aid assessment ?  
a) the checks must be done in alphabetical order  
b) antibacterial, biological, chemical  
c) airways, breathing, circulation  
d) an acronym for Always Be Careful
- Q23) Which of the following protection is used for the high speed protection for entire transmission line ?  
a) directional relay      b) impedance relay  
c) differential relay      d) pilot relay
- Q24) The tripped circuit breaker and blown fuses show that :-  
a) the voltage is high  
b) too much current is flowing  
c) there is too little resistance in the circuit  
d) the ac frequency is high

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- 1.5 m)  
2.4 m)
- b) 10' (3.05 m)  
d) 15' (4.6 m)
- following IS code classifies the equipments on the basis of classification :-
- 409 - 1980  
420 - 1976
- b) IS 9420 - 1980  
d) IS 9000 - 1980
- circuit is interrupted by putting the switch in neutral then :-
- There will be no effect of switching off the circuit
- The circuit may get energized if an unintentional path to the earth is available
- Depending on the circuit being interrupted either 'a' or 'b'
- None of the above
- Three pin plug for the protection is provided by :-

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- Q41) In vapour compression system the increase in evaporator pressure causes :-
- a) decrease in COP
  - b) increase in COP
  - c) does not affect COP
  - d) causes compressor work to increase
- Q42) For laminar flow through pipes the friction factor is given by :-
- a)  $16/Re$
  - b)  $64/Re$
  - c)  $Re/16$
  - d)  $Re/64$
- Q43) The mechanical efficiency of a compressor is given by :-
- a)  $IP/BP$
  - b)  $BP/IP$
  - c)  $IFSC/BSFC$
  - d) both (a) and (c)
- Q44) The angle of deflection of jet in a Pelton wheel varies between :-
- a)  $165-170^\circ$
  - b)  $155-160^\circ$
  - c)  $175-180^\circ$
  - d)  $145-150^\circ$
- Q45) The materials having the same elastic properties in all direction are called :-
- a) Elastic materials
  - b) Isotropic materials
  - c) Brittle materials
  - d) Ductile materials
- Q46) The difference between the dedendum and addendum of a tooth is termed as :-
- a) Central distance
  - b) Backlash
  - c) Flank of Tooth
  - d) Clearance
- Q47) If both S.F diagram and B.M. diagram of a antilever are parabolic, the cantilever lever will have :-
- a) a point load at its free end
  - b) an uniformly distributed load over the entire length
  - c) a gradually varying load from zero at free end to  $w$  per unit length at the fixed end
  - d) a point load at the middle point

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- Q55) In the event of an accident :
- a) move the victim quickly if a neck or back injury is suspected
  - b) switch off electrical circuits involved
  - c) touch the burns if any and cover them with clothings
  - d) stay away from the victim
- Q56) Which one of the following safety precautions is applicable when working with the gas analyser ?
- a) ensure that the fuel tank is full before doing the test
  - b) the test can only be done at room temperature
  - c) the exhaust gases of a vehicle must always be tested in a well ventilated area
  - d) all persons who are not involved with the test should leave the working area
- Q57) Never work with power tools or machines when you are :-
- a) in a hurry
  - b) tired
  - c) both (a) and (b)
  - d) none of the above
- Q58) Which of the following is false :-
- a) half the workers injured on the job are new employees
  - b) always carry tools in your pockets
  - c) a metal edge can be just as sharp as the tools that cut it
  - d) before using a machine, make sure all the movable parts are properly clamped
- Q59) Lathe Safety means :-
- a) before removing your work from the lathe, do not remove the tool bit
  - b) do not cut too deep or scrape too long
  - c) hold all wood cutting tools firmly with one hand
  - d) always leave a chuck wrench in a chuck
- Q60) When working with paint or painting equipment, it is important to have :-
- a) adequate ventilation and to avoid flames or other sources of ignition
  - b) always wear personal protective equipment when working with paint
  - c) clean the booths and ventilation ducts frequently
  - d) all of the above

### GENERAL KNOWLEDGE

- Q61) The Sanchi Stup is located near :-  
a) Gaya b) Varanasi  
c) Bhopal d) Bijapur
- Q62) National Song of India was composed by :-  
a) Rabindra Nath Tagore  
b) Jai Shankar Prasad  
c) Mohammed Iqbal  
d) Bankim Chandra Chatterjee
- Q63) Which of the following is the currency of Japan ?  
a) Yen b) Baht c) Yuan d) Won
- Q64) Which of the following is the publisher of Employment News ?  
a) Indian Express Group  
b) Times of India Group  
c) Professional Management Group  
d) Ministry of Information and Broadcasting
- Q65) Who among the following is known as the Tragedy King of Indian cinema ?  
a) Raj Kapoor b) Dilip Kumar  
c) Bharat Bhushan d) Ashok Kumar
- Q66) The Indian Institute of Science is located at :-  
a) New Delhi b) Bangalore  
c) Chennai d) Kharagpur
- Q67) Which of the following cities is known as the Electronic City of India ?  
a) Mumbai b) Hyderabad  
c) Gurgaon d) Bangalore
- Q68) Which of the following is the name of the first indigenously developed Indian Super Computer ?  
a) Gati b) Shakti c) Param d) Dharam

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- Q72)** The number in the following boxes / square are filled on the basis of some rule or analogy. Only one square has a question mark (?) in it. Find out the correct answer from the alternatives given below :

a) 1000      b) 144      c) 121      d) 64

- a) Lake      b) Sea      c) River      d) Pond

- ## V) Stars



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- a) IV, III, II, V, I  
c) II, III, IV, V, I

- b) III, IV, II, V, I  
d) I, IV, III, II, V

Q78) Choose the most appropriate alternative as the answer :-  
A clock always has :-

- a) battery                      b) needles (hands)  
c) alarm                        d) numbers

Q79) In the number series given below, one term in the series is wrong. Choose the wrong term :-

Series : 1, 2, 5, 10, 17, 28

- a) 2                      b) 10                      c) 28                      d) 17

Q80) 'a' and 'b' are brothers. 'c' is the sister of 'a'; 'd' is the brother of 'e', 'e' is the daughter of 'b'. Who is the uncle of 'd'?

- a) d                      b) a                      c) e                      d) b

ENGLISH

Directions ( Q81 – 85 ) : Read the passage given below and complete the statements that follow with the help of given options.

Bina was probably ten. She may have been nine or even eleven, she couldn't be sure because no one in the village kept birthdays; but her mother told her she was born during the winter when the snow had come up to the windows, and that was just over ten years ago, wasn't it? Two years later her father had died; but his passing away had made no difference to their way of life. They had three tiny terraced fields on the side of the mountains, and they grew potatoes, onions, ginger, beans, mustard and maize; not enough to sell in the town but enough to live on.

Q81) Bina was around ..... old.

- a) nine years                      b) ten years  
c) eleven years                      d) twelve years

Q82) She was born during ..... season.

- a) winter                      b) summer                      c) autumn                      d) rainy

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- Q83) Ten years ago.....  
 a) it rained very heavily  
 b) the snow came up to the windows  
 c) there was neither rain nor snowfall  
 d) Bina's father died

- Q84) The family possessed.....  
 a) two cows and a goat  
 b) a small house near the mountains  
 c) three fields by the mountain side  
 d) three fields on the river bank

- Q85) In their fields they grew.....  
 a) cabbage, carrots, onions and wheat  
 b) wheat, rice, barley and maize  
 c) ginger, beans, garlic and wheat  
 d) potatoes, ginger, onions and beans

Directions ( Q86 – 90 ) : Complete the sentences given below with the help of options that follow each sentence.

- Q86) ..... Ganges is a holy river.  
 a) A                      b) An                      c) The                      d) No article

- Q87) I have built..... new house.  
 a) a                      b) an                      c) the                      d) No article

- Q88) You should save something..... a rainy day.  
 a) on                      b) for                      c) in                      d) at

- Q89) The inspector will look..... the case.  
 a) at                      b) for                      c) in                      d) into

- Q90) She is looking..... a book on the shelf.  
 a) on                      b) in                      c) for                      d) out

Directions ( 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) CORRECT  
 a) untrue                      b) wrong                      c) right                      d) false

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Q92) BLAME

- a) praise      b) accuse      c) admire      d) understand

Q93) DIM

- a) dull      b) bright      c) clear      d) brilliant

Q94) DRESS

- a) bareness      b) nakedness      c) nudity      d) clothing

Q95) FAIR

- a) dull      b) clear      c) ugly      d) foul

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

Q96) CLEVER

- a) wise      b) stupid      c) intelligent      d) smart

Q97) WISE

- a) clever      b) sensible      c) quick      d) foolish

Q98) STAND

- a) sit      b) walk      c) dance      d) hear

Q99) SPEAK

- a) see      b) listen      c) watch      d) talk

Q100) NIGHT

- a) morning      b) evening      c) day      d) noon



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

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