

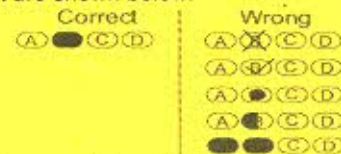
Question Booklet Series:

**A****Polytechnic Written Test– 2015  
QUESTION BOOKLET****INSTRUCTIONS**Question Booklet  
Number:**525198**Maximum Time Allowed : 3 Hours  
Negative Marking : 0.25No. of Questions: 180  
Maximum Marks: 180Roll Number: Answer Sheet Number: 

Please read the following instructions carefully:

- 1) Check the Booklet thoroughly:** In case of any defect – Misprint, Missing question(s), Missing page, Blank page, Damaged or Defaced page, or duplication of question(s) / Page(s), get the Booklet changed with the Booklet of the same series from the Room Invigilator. No complaint shall be entertained after the Entrance Test is over.
- 2) Write your Roll Number and the OMR Answer Sheet Number on the Question Booklet.**
- 3) Check your Roll Number, Question Booklet Number and Question Booklet Series carefully before entering them on the OMR Sheet.** Ensure twice that you have made their entries on the OMR Answer Sheet correctly and darken the relevant bubbles on the Answer Sheet and sign at the appropriate place. Incomplete particulars given will result in the non-evaluation of your answer sheet.
- 4) Strictly follow the instructions given by the Centre Supervisor / Room Invigilator and those given on the Question Booklet.**
- 5) Candidates are not allowed to carry any papers, notes, books, calculators, cellular phones, scanning devices, pagers etc. to the Examination Hall.** Any candidate found using, or in possession of such unauthorized material or indulging in copying or impersonation or adopting unfair means / reporting late / without Admit Card will be debarred from the Entrance Test.
- 6) Please mark the right responses on the OMR Sheet with ONLY a Blue/Black ball point pen.** Use of eraser, whitener (fluid) and cutting on the OMR Answer Sheet is NOT allowed.
- 7) The test is of objective type containing multiple choice questions (MCQs).** Each objective question is followed by four responses. You are required to choose the correct/best response and mark your response on the OMR Answer Sheet and NOT on the Question Booklet.
- 8) There will be 0.25 negative marking for every wrong answer.**
- 9) For marking response to a question, completely darken the CIRCLE so that the alphabet inside the CIRCLE is not visible.** Ensure that you darken only one circle in the Answer Sheet.

Even a stray mark / faint mark on the Answer Sheet is read by the scanner and will make your answer invalid by reading it as a case of double shading. You have to be very very careful while darkening the bubbles. The CORRECT and the WRONG methods of darkening the CIRCLE on the OMR Answer Sheet are shown below.



- 10) Please be careful while marking the response to questions.** The response once marked cannot be changed and if done shall be treated as a wrong answer.
- 11) In view of the limited time, do NOT waste your time on a question which you find difficult.** Attempt easier questions first and come back to the difficult questions later during the test.
- 12) DO NOT make any stray marks anywhere on the OMR Answer Sheet.** DO NOT fold or wrinkle the OMR answer sheet.
- 13) Rough work MUST NOT be done on the OMR Answer Sheet.** Use rough page of your Question Booklet for this purpose.
- 14) Candidates are provided carbonless OMR Answer Sheet having original copy and candidate's copy.** After completing the examination, candidates are directed to fold at perforation on the top of the sheet, tear it to separate original copy and candidate's copy and then hand over the original copy of OMR Answer Sheet to the Room Invigilator and retain candidate's copy.
- 15) If you have made any wrong entry of Roll Number, Booklet Number or Booklet Series Number in the OMR Answer Sheet, you should report it to the Invigilator / Superintendent or report it within three days after the conclusion of the Entrance Test to the BOPEE office, Jammu / Srinagar positively, failing which no complaint / representation shall be entertained and the OMR Answer Sheet shall be evaluated strictly according to the entries made by you.**

**DO NOT OPEN THE SEAL OF THIS BOOKLET UNTIL TOLD TO DO SO**

Section 1 - English

1. Identify the sentence error in the following sentence:  
Salim never liked bathing the dog, feeding the cats,  
or to ride the horse.  
(A) bathing the  
(B) feeding the  
(C) to ride  
(D) no error
2. Identify the sentence error in the following sentence:  
Her and her friend like to stay in their hotel room and  
drink milk whenever they take a trip.  
(A) Her  
(B) her friend  
(C) drink milk  
(D) they take a trip
3. They narrowly avoided \_\_\_\_\_ the bus.  
(A) missing  
(B) to miss  
(C) missed  
(D) having miss
4. After months of studying hard, Mina \_\_\_\_\_  
cleared UPSC Examinations.  
(A) initially  
(B) consequently  
(C) finally  
(D) therefore
5. Identify the sentence error in the following sentence:  
Of all the students in my class, nobody-not even me-  
are excited about the new teacher.  
(A) Of all the students  
(B) nobody  
(C) are excited  
(D) the new teacher
6. Fatima knows German; \_\_\_\_\_, we have  
selected her to head our Bank in Germany.  
(A) therefore  
(B) moreover  
(C) provided  
(D) otherwise
7. I'm afraid I don't recollect \_\_\_\_\_ an exam  
today!  
(A) to have  
(B) to has  
(C) to had  
(D) having
8. \_\_\_\_\_ my family, I will also invite my friend on  
my Birthday.  
(A) Aside  
(B) Despite  
(C) In spite  
(D) Besides
9. Choose the correct alternative for the underlined  
word:  
He suggested that, we should be bound by a code of  
conduct, isn't it?  
(A) isn't it  
(B) aren't we  
(C) shouldn't we  
(D) none of the above

10. Fill in the blank with words given in brackets, using the verbs in Past Perfect Tense.  
\_\_\_\_\_ Jammu before you went there in 2013?  
(you / ever / to visit)  
(A) Did you ever visited Jammu before you went there in 2013?  
(B) Had you ever visited Jammu before you went there in 2013?  
(C) Have you ever visited Jammu before you went there in 2013?  
(D) Could you ever visited Jammu before you went there in 2013?
11. Choose the correct alternative for the underlined word:  
She depends greatly on her brother.  
(A) depend greatly  
(B) has been depending  
(C) should greatly depend  
(D) No correction
12. Identify the type of clause for the underlined area of the sentence.  
From the border of Punjab the great road continued on to Delhi, to Varanasi, the place we once called Benaras, to end in Calcutta, favoring the banks of Ganges for much of this distance.  
(A) Adjective clause  
(B) Independent clause  
(C) Adverb clause  
(D) Noun clause
13. Fill in the blank with words given in brackets, using the verbs in Past Perfect Tense.  
\_\_\_\_\_ the office before they drove away?  
(they / to ring)  
(A) Had they rung the office before they drove away?  
(B) They rang the office before they drove away?  
(C) Had they ring the office before they drove away?  
(D) They had ring the office before they drove away?
14. Our dog is of very good breed as \_\_\_\_\_ is the offspring of two high breed dogs and inherited \_\_\_\_\_ features.  
(A) this / its  
(B) she / theirs  
(C) it / their  
(D) he / their
15. Fill in the blank with words given in brackets, using the verbs in Past Perfect Tense.  
\_\_\_\_\_ the onions before he hurried to the window? (Saif / to cut)  
(A) Did Saif cut the onions before he hurried to the window?  
(B) Have Saif cut the onions before he hurried to the window?  
(C) Had Saif cut the onions before he hurried to the window?  
(D) Could Saif cut the onions before he hurried to the window?
16. The teacher could not remember the name of the student \_\_\_\_\_ science project received a cash prize of Rs. 20,000.  
(A) who  
(B) whose  
(C) whom  
(D) her

17. Identify the type of clause for the underlined area of the sentence.  
If I say that we had a house and two servants in Dhaka, what you might imagine will not match reality.
- (A) Adjective clause  
(B) Independent clause  
(C) Noun clause  
(D) Adverb clause
18. The solicitor wrote a letter to Rahim and \_\_\_\_\_ in which he asked us if we could settle the matter between \_\_\_\_\_.
- (A) me / us  
(B) I / us  
(C) mine / ours  
(D) mine / we
19. She considered \_\_\_\_\_ homes.
- (A) to change  
(B) changing  
(C) having change  
(D) to be changing
20. Choose the correct reported speech version of the statement.  
"What are they doing?" she asked.
- (A) She wanted to know what they are doing.  
(B) She wanted to know what they were doing.  
(C) She wants to know what they were doing.  
(D) She is wanting to know what they were doing.
21. Identify the type of clause for the underlined area of the sentence.  
The great rivers of India have served as the arteries of civilization, with the Ganges the aorta of Northern India.
- (A) Adverb clause  
(B) Noun clause  
(C) Adjective clause  
(D) Independent clause
22. Join the three sentences using appropriate conjunction(s).  
Jai saw a dog on the road. He decided to adopt the dog. Jai brought the dog home.
- (A) Jai saw a dog on the road and decided to adopt the dog, so he brought the dog home.  
(B) Jai saw a dog on the road so decided to adopt the dog, and he brought the dog home.  
(C) Jai saw a dog on the road whom he decided to adopt, so he brought the dog home.  
(D) Jai saw a dog on the road whom he decided to adopt the dog, and so he brought the dog home.
23. Choose the correct reported speech version of the statement.  
Vikram said, "I want to visit my friends this weekend."
- (A) Vikram said he wanted to visit his friends that weekend.  
(B) Vikram said he wants to visit his friends that weekend.  
(C) Vikram said he wanted to visit his friends this weekend.  
(D) Vikram said he wanted to visit her friends that weekend.
24. Choose the correct reported speech version of the statement.  
The teacher asked, "Who speaks English?"
- (A) The teacher wants to know who spoke English.  
(B) The teacher wanted to know who speak English.  
(C) The teacher wanted to know who spoke English.  
(D) The teacher wants to know who speak English.

25. Choose the type of Pronoun that is underlined in the sentence :
- He tripped over and fell down.
- (A) Personal Pronoun  
(B) Relative Pronoun  
(C) Reflexive Pronoun  
(D) Indefinite Pronoun
26. Choose the correct alternative for the underlined word:
- Hardly she had finished her lunch than the phone rang.
- (A) while  
(B) when  
(C) then  
(D) however

Direction for questions 27-30:

Complete the conversation by choosing the most appropriate given options:


Abraham: I heard that Rahim (9) \_\_\_\_\_ open a sweet shop, though he is little uncertain.

Margret: He (10) \_\_\_\_\_ not plunge into another business proposition; he (11) \_\_\_\_\_ forget the colossal failure of his last business venture.

Abraham: You (12) \_\_\_\_\_ not have any worry on that count, as he will not be investing any money.

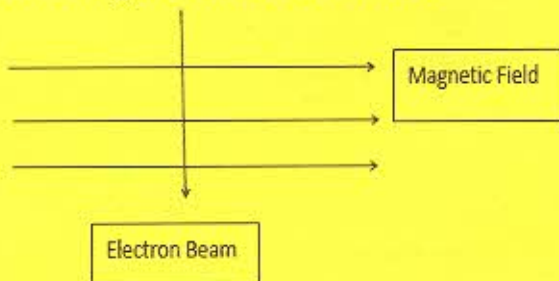
27. Select the correct option for the blank numbered (10) in the passage above:
- (A) need  
(B) dare  
(C) will  
(D) shall
28. Select the correct option for the blank numbered (12) in the passage above:
- (A) will  
(B) shall  
(C) need  
(D) dare
29. Select the correct option for the blank numbered (9) in the passage above:
- (A) may  
(B) can  
(C) could  
(D) will
30. Select the correct option for the blank numbered (11) in the passage above:
- (A) needn't  
(B) won't  
(C) can't  
(D) shouldn't

## Section 2 - Physics

31. Which of the following characteristics is NOT suitable for fuse wire?  
 (A) Thin and short  
 (B) Low melting point  
 (C) High resistance  
 (D) Thick and short
32. LPG has strong smell due to the presence of  
 (A) Ethyl mercaptan  
 (B) Ethyl isocyanide  
 (C) Methyl amine  
 (D) Ethanol
33. A current carrying wire is placed along east-west in a magnetic field directed northwards. If the current in the wire is directed eastward, what will be the direction of force on the wire?  
 (A) Due west  
 (B) Due south  
 (C) Vertically upwards  
 (D) Vertically downward
34. The figure below shows the poles of an electromagnetic field. The magnetic field is most non-homogenous at the point  
  
 (A) P  
 (B) Q  
 (C) T  
 (D) R
35. Three 3 ohm resistors are connected to form a triangle. What is the resistance between any two of the corners?  
 (A) 3/4 ohms  
 (B) 3 ohms  
 (C) 2 ohms  
 (D) 4/3 ohms
36. One type of energy which has NOT been controlled so far:  
 (A) geothermal energy  
 (B) nuclear fission energy  
 (C) ocean thermal energy  
 (D) nuclear fusion energy
37. Which of the following is NOT ultimately derived from the sun's energy?  
 (A) Wind energy  
 (B) Geothermal energy  
 (C) Biomass energy  
 (D) Ocean thermal energy
38. If the length of the conductor is doubled, then its resistivity becomes  
 (A) double  
 (B) halved  
 (C) remains same  
 (D) three times
39. The fossil fuel whose known reserve in the earth are expected to last for the minimum period is:  
 (A) uranium  
 (B) coal  
 (C) petroleum  
 (D) natural gas

40. Two electric bulbs have resistances in the ratio 1:2. If they are joined in series, the energy consumed in them are in the ratio
- (A) 1:2
  - (B) 2:1
  - (C) 4:1
  - (D) 1:1
41. The phenomena responsible for the light of sun to stay beyond sunset is
- (A) scattering
  - (B) refraction
  - (C) reflection
  - (D) dispersion
42. The lateral displacement is directly proportional to:
- (A) angle of refraction
  - (B) thickness of slab
  - (C) angle of incidence
  - (D) none of these
43. Two resistances  $R_1$  and  $R_2$  give combined resistance of 4.5 ohms when in series and 1 ohm when in parallel. The resistances are
- (A) 3 ohms and 6 ohms
  - (B) 3 ohms and 9 ohms
  - (C) 1.5 ohms and 3 ohms
  - (D) 1.5 ohms and 0.5 ohms
44. The minimum speed of wind necessary for the satisfactory working of a wind generator to produce electricity is about:
- (A) 10 km/h
  - (B) 15 km/h
  - (C) 20 km/h
  - (D) 25 km/h
45. The force exerted on a current-carrying wire placed in a magnetic field is zero when the angle between the wire and the direction of magnetic field is:
- (A)  $45^\circ$
  - (B)  $60^\circ$
  - (C)  $90^\circ$
  - (D)  $180^\circ$
46. Beam of white light splits into its constituent colours by a process known as
- (A) Dispersion
  - (B) Reflection
  - (C) Refraction
  - (D) Convergence
47. The lamps in a household circuit are connected in parallel because
- (A) this way they require less current
  - (B) if one lamp gets fused the other remains glowing
  - (C) in this way the power is saved
  - (D) it helps in short circuiting
48. A human eye can focus on objects at different distances by adjusting the focal length of the eye lens. This is due to:
- (A) accommodation
  - (B) near sightedness
  - (C) long sightedness
  - (D) persistence of vision

49. An electron beam enters a magnetic field at right angles to it as shown in the figure. The direction of force acting on the electron beam will be:



- (A) to the left  
 (B) to the right  
 (C) into the page  
 (D) out of the page
50. A wire has resistance of 21 ohms. It is melted down and from the same volume of metal a new wire is made, that is three times longer than the original one. What is the resistance of new wire?  
 (A) 63 ohms  
 (B) 189 ohms  
 (C) 7 ohms  
 (D) 21 ohms
51. An electric motor is a device which transforms:  
 (A) mechanical energy to electrical energy  
 (B) heat energy to electrical energy  
 (C) electrical energy to heat energy  
 (D) electrical energy to mechanical energy
52. A lens of power +3.5 D is placed in contact with the lens of power -2.5 D. The combination will behave like:  
 (A) A convergent lens of focal length 100 cm  
 (B) A divergent lens of focal length 100 cm  
 (C) A convergent lens of focal length 200 cm  
 (D) A divergent lens of focal length 200 cm
53. Heat produced in a current carrying wire in 5 s is 60 J. The same current is passed through another wire of half the resistance. The heat produced in 5 s will be  
 (A) 60 J  
 (B) 30 J  
 (C) 15 J  
 (D) 120 J
54. Three equal resistances when combined in series are equivalent to 90 W. Their equivalent resistance when combined in parallel will be  
 (A) 270 W  
 (B) 30 W  
 (C) 3.810 W  
 (D) 10 W
55. A wire of resistance 8 ohm is bent in the form of circle. The resistance across its diameter will be  
 (A) 8 ohm  
 (B) 4 ohm  
 (C) 2 ohm  
 (D) 16 ohm
56. A stick appears broken in water due to:  
 (A) Total depth of water body  
 (B) Refraction of light  
 (C) Reflection of light  
 (D) None of these
57. A proton and an electron enter a region of space with equal speed in which a magnetic field is suddenly switched on. The force experienced by them are  
 (A) equal and opposite  
 (B) different in magnitude but in the same direction  
 (C) in the ratio of 18:37  
 (D) same in magnitude and direction



58. A convex mirror of focal length 10 cm is placed in water. The refractive index of water is  $\frac{4}{3}$ . What will be the focal length of the mirror in water?
- (A)  $\frac{40}{3}$  cm  
(B)  $\frac{30}{4}$  cm  
(C) 10 cm  
(D) 20 cm
59. A spherical air bubble in water behaves as
- (A) Convex lens  
(B) Concave lens  
(C) Concave mirror  
(D) Plane mirror
60. If a long hollow copper pipe carries a current, the produced magnetic field will be
- (A) inside the pipe only  
(B) outside the pipe only  
(C) both inside and outside the pipe  
(D) neither inside nor outside the pipe
61. In vacuum, speed of light depends upon
- (A) wavelength  
(B) frequency  
(C) color  
(D) none of the above
62. The unit of expressing electric power is
- (A) joule  
(B) joule per sec  
(C) coulomb per sec  
(D) kilowatt hour
63. What should be the refractive index of completely transparent medium for it to be invisible in vacuum?
- (A) Less than 1  
(B) 1  
(C) Greater than 1  
(D) The medium cannot be invisible whatever be the value of refractive index
64. A concave mirror forms the real image of an object which is magnified 4 times. The object is moved 3 cm away, the magnification of the image is 3 times. What is the focal length of the mirror?
- (A) 3 cm  
(B) 4 cm  
(C) 12 cm  
(D) 36 cm
65. The resistivity of certain material is 0.6 ohm m. The material is most likely to be:
- (A) insulator  
(B) conductor  
(C) semi-conductor  
(D) super conductor
66. The index of refraction of diamond is 2.0, velocity of light in diamond in cm per second is approximately:
- (A)  $6 \times 10^{10}$   
(B)  $3.0 \times 10^{10}$   
(C)  $2 \times 10^{10}$   
(D)  $1.5 \times 10^{10}$
67. What is the magnification when the object is placed at  $2f$  from the pole of a convex mirror?
- (A)  $-\frac{1}{3}$   
(B)  $-\frac{2}{3}$   
(C) -1  
(D)  $-\frac{3}{2}$
68. A long sighted man is not able to see objects nearer to his eye than 50 cm. To enable him to read a book, 25 cm away, he should use spectacle lenses with the following power.
- (A) - 6 D  
(B) - 4 D  
(C) 0 D  
(D) + 4 D

69. One of the following does NOT contribute to acid rain. That is:
- (A) sulphur dioxide
  - (B) carbon dioxide
  - (C) nitrogen monoxide
  - (D) carbon monoxide
70. If we double the radius of a current carrying coil keeping the current unchanged, what happens to the magnetic field at the centre?
- (A) Becomes four times
  - (B) Is doubled
  - (C) Remains unchanged
  - (D) Is halved
71. A current is flowing towards north along a power line. The direction of the magnetic field above it is towards
- (A) north
  - (B) east
  - (C) south
  - (D) west
72. A thin convex lens of focal length 10 cm and a thin concave lens of focal length 20 cm are in contact. The combination acts as:
- (A) concave lens of focal length 10.0 cm
  - (B) concave lens of focal length 20.0 cm
  - (C) convex lens of focal length 10.0 cm
  - (D) convex lens of focal length 20.0 cm
73. If the potential difference between the ends of the fixed resistor is halved, the electric power will become
- (A) four times
  - (B) one-fourth
  - (C) halved
  - (D) eight times
74. A long copper pipe carries a current. Then the magnetic field is
- (A) zero inside and finite outside
  - (B) finite inside and zero outside
  - (C) finite both inside and outside
  - (D) zero both inside and outside
75. In order to find an efficient solar cooker, the cover of cooker box should be made of:
- (A) iron sheet
  - (B) shining aluminum sheet
  - (C) transparent glass sheet
  - (D) butter paper sheet
76. For a fixed supply voltage, the current flowing through a conductor will decrease when
- (A) cross-sectional area of the conductor is increased
  - (B) length of the conductor is reduced
  - (C) length of the conductor is increased
  - (D) cross-sectional area is increased and length is decreased
77. Which phenomenon is responsible for the twinkling of stars?
- (A) Atmosphere Reflection
  - (B) Atmosphere Refraction
  - (C) Total Internal Reflection
  - (D) None of these
78. A convex lens of focal length 16 cm forms a virtual of double the size of the object. What is the distance of the object from the lens?
- (A) 8 cm
  - (B) 16 cm
  - (C) 24 cm
  - (D) 32 cm

79. A minimum resistance is to be prepared from a copper wire, its length and diameter should be
- (A)  $l$  and  $d$
  - (B)  $l/2$  and  $2d$
  - (C)  $2l$  and  $d$
  - (D)  $2l$  and  $d/2$
80. The radiation present in sunlight which makes a solar cooker work are:
- (A) gamma rays
  - (B) visible light
  - (C) infrared rays
  - (D) ultraviolet rays