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December 17, 2013 by Anand Meena — 0 Comments



PU LEET 2012 Question Papers with Answers

PU LEET 2012 Question Papers with Answers is given below.

Question Paper

1082

1. The sum of odd integers from 1 to 2001 is

- (A) 1002000 (B) 1002001 (C) 1002002 (D) 1002003

2. The rank of the matrix $A = \begin{bmatrix} -1 & 2 & 3 & -2 \\ 2 & -5 & 1 & 2 \\ 3 & -8 & 5 & 2 \\ 5 & -12 & -1 & 6 \end{bmatrix}$ is

- (A) 1 (B) 2 (C) 3 (D) 4

3. If $\sin(P+Q) = \frac{\sqrt{3}}{2}$, $\cos(P-Q) = \frac{\sqrt{3}}{2}$, then the values of P and Q if they lie in the first quadrant are

- (A) $P = 15^\circ$, $Q = 45^\circ$ (B) $P = 30^\circ$, $Q = 30^\circ$
 (C) $P = 30^\circ$, $Q = 45^\circ$ (D) $P = 45^\circ$, $Q = 15^\circ$

4. The straight lines: $x + y = 0$, $3x + y - 4 = 0$, $x + 3y - 4 = 0$ form a triangle which is

- (A) Isosceles (B) equilateral (C) right angled (D) none of these

5. The Taylor series expansion of $\frac{\sin x}{x - \pi}$ at $x = \pi$ is given by

- (A) $1 + \frac{(x - \pi)^2}{2!} + \dots$ (B) $-1 - \frac{(x - \pi)^2}{2!} + \dots$
 (C) $1 - \frac{(x - \pi)^2}{2!} + \dots$ (D) $-1 + \frac{(x - \pi)^2}{2!} + \dots$

6. The radius of curvature for the curve $y = e^x$ at $(0, 1)$ is

- (A) $\sqrt{2}$ (B) $2\sqrt{2}$ (C) $\frac{1}{\sqrt{2}}$ (D) $\frac{1}{2\sqrt{2}}$

7. The value of the $\lim_{(x, y) \rightarrow (0, 0)} \frac{x^2 - xy}{\sqrt{x} - \sqrt{y}}$ is

- (A) 0 (B) 1 (C) $\frac{1}{2}$ (D) 2

8. If $x = uv$ and $y = \frac{u+v}{u-v}$, then $\frac{\partial(u,v)}{\partial(x,y)}$ is

- (A) $\frac{(u-v)}{2uv}$ (B) $\frac{(u-v)}{4uv}$ (C) $\frac{(u-v)^2}{2uv}$ (D) $\frac{(u-v)^2}{4uv}$

9. For what value of λ , the differential equation: $(xy^2 + \lambda x^2y)dx + (x^2 + y)x^2 dy = 0$ is exact

- (A) 1 (B) 2 (C) 3 (D) 4

10. The integrating factor for the differential equation: $(y^3 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0$ is

- (A) $\frac{1}{y}$ (B) $\frac{1}{y^2}$ (C) $\frac{1}{y^3}$ (D) $\frac{1}{y^4}$

11. The value of the integral $\int_0^{\frac{\pi}{2}} \sin^5 x \cos^6 x dx$ is

- (A) $\frac{8}{693}$ (B) $\frac{6}{693}$ (C) $\frac{7}{693}$ (D) $\frac{5}{693}$

12. The volume of solid obtained by revolving the area under $y = e^{-2x}$ about the x -axis is

- (A) $\frac{\pi}{2}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{6}$ (D) $\frac{\pi}{8}$

13. The value of the double integral $\int_0^{\infty} \int_0^x x e^{-\frac{x^2}{y}} dy dx$ is

- (A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) $\frac{1}{4}$ (D) $\frac{3}{2}$

14. If $\vec{A} = (bx + 4y^2z)\hat{i} + (x^3 \sin z - 3y)\hat{j} - (e^x + 4\cos^2 xy)\hat{k}$ is solenoidal, then the constant b is

- (A) 0 (B) 1 (C) 2 (D) 3

15. If $\vec{F} = ax\hat{i} + by\hat{j} + cz\hat{k}$, a, b, c are constants, then $\iint_S \vec{F} \cdot \hat{n} ds$, where S is the surface of a unit sphere is

- (A) $\frac{\pi}{3}(a+b+c)$ (B) $\frac{4\pi}{3}(a+b+c)$
 (C) $2\pi(a+b+c)$ (D) $\pi(a+b+c)$

16. A particle moves in a circular path of radius R . Its speed v is not constant. The components of acceleration (i) a_{rad} , that is directed towards the centre of circle and perpendicular to velocity v , and (ii) a_{par} that is parallel to path, are given by

- (A) $a_{rad} = \frac{v^2}{R}$; $a_{par} = \frac{dv}{dt}$
 (B) $a_{rad} = \frac{v}{R}$; $a_{par} = \frac{v^2}{R}$
 (C) $a_{rad} = \frac{dv}{dR}$; $a_{par} = \frac{v^2}{R}$
 (D) $a_{rad} = \frac{v^2}{R}$; $a_{par} = \frac{dv}{dR}$

17. A block is projected along a rough horizontal surface to slide with a speed of 10 m/s. The coefficient of kinetic friction is 0.10. Before coming to rest, the block will travel a distance of

- (A) 5 m
 (B) 30 m
 (C) 100 m
 (D) 50 m

18. A body makes angular simple harmonic motion of amplitude $\pi/10$ radians and time period of 0.05 sec. At time $t = 0$, the body is at a displacement of $\pi/10$ radians. The equation representing the angular displacement, θ , is given by

- (A) $\theta = \frac{\pi}{10} \cos[40\pi t]$ radians

(B) $\theta = \frac{\pi}{10} \text{Sin}[40\pi t]$ radians

(C) $\theta = \frac{\pi}{10} \text{Cos}\left[40\pi t + \frac{\pi}{10}\right]$ radians

(D) $\theta = \frac{\pi}{10} \text{Sin}[40\pi t] + \frac{\pi}{10}$ radians

19. A 600 nm laser light is passed through a narrow slit of width 0.2 mm. The diffraction pattern is observed on a screen placed 6 m away from the slit. The distance on the screen between the centres of the first minima outside the central bright fringe is

(A) 18 mm

(B) 36 mm

(C) 3.6 mm

(D) 1.8 mm

20. A converging lens is consisting of flint glass. The focal length for the lens are f_V and f_R for violet and red light, respectively. Then

(A) $f_V > f_R$

(B) $f_V = f_R$

(C) $f_V < f_R$

(D) f_V can be equal to, greater than or smaller than f_R depending on the position of the object.

21. In the He-Ne laser, which of the following is true?

(A) the laser transition occurs in He atom.

(B) the metastable state occurs only in Ne atoms.

(C) the Ne atoms help to achieve a population inversion in the He atoms.

(D) the metastable state occur in both the He and Ne atoms.

22. A copper wire (resistivity = $1.7 \times 10^{-8} \Omega\text{-m}$) of diameter 1.0 mm carries current of 1.7 A. The magnitude of electric field in the wire is

(A) ~ 3.5 kV

(B) ~ 35 V/m

(C) ~ 0.035 V/m

(D) ~ 0.35 V/m

23. A steam engine intakes 100 g of steam at 100°C per minute and cools it down to 20°C .

Given the latent heat of vaporization of steam = 540 cal/g and specific heat of water = 1 cal/g-°C. The heat rejected by the steam engine per minute is

- (A) 62,000 cal
- (B) 8,000 cal
- (C) 54,000 cal
- (D) 90,00 cal

24. The average energy of a molecule of HCl gas exhibiting translation, rotation and vibration motion is (k is Boltzmann constant and T is temperature)

- (A) $3/2 kT$
- (B) $5/2 kT$
- (C) $7/2 kT$
- (D) $9/2 kT$

25. An isolated metallic solid sphere of diameter 90 cm is given a charge of $0.5 \mu C$. The potential of the sphere is [Given $(4\pi\epsilon_0)^{-1} = 9 \times 10^9 \text{ m/F}$]

- (A) 4500 V
- (B) 2700 V
- (C) 100,000 V
- (D) 10,000 V

26. A uniform wire of resistance 10Ω is bent to form a complete circle. The resistance between two adjoining quarter points on the diameter of circle is

- (A) 5Ω
- (B) 2.19Ω
- (C) 1.87Ω
- (D) 6.25Ω

27. A proton and an alpha particle moving with equal kinetic energy enter perpendicularly into a magnetic field. The ratio of the respective radii, R_P and R_A , their circular paths will be

- (A) 1
- (B) 2
- (C) $\sqrt{2}$
- (D) $\frac{1}{\sqrt{2}}$

28. The density of the ^{14}C nucleus (atomic number = 6) is
(Given 1 atomic mass unit = 1.66×10^{-27} kg)
- (A) $\sim 2.4 \times 10^{17}$ kg/m³
 - (B) $\sim 2.4 \times 10^{10}$ kg/m³
 - (C) $\sim 1.2 \times 10^{14}$ kg/m³
 - (D) $\sim 1.7 \times 10^{15}$ kg/m³
29. Number of atoms per unit cell in case of body-centred cubic is
- (A) 4
 - (B) 3
 - (C) 2
 - (D) 12
30. Electron microscope is based on
- (A) negative charge of electron
 - (B) negative beta decay of radioisotopes
 - (C) photoelectric effect
 - (D) wave nature of electrons
31. A capacitor with no initial charge at $t = \infty$ acts as
- A) short circuit
 - B) open circuit
 - C) current source
 - D) voltage source
32. The instantaneous voltage $e = 346.4 \sin 314t$ volts is given to the circuit having resistance $R = 10\Omega$. The current flowing will be
- A) 1A
 - B) 10A
 - C) 24.5A
 - D) 34.6A
33. A transformer has hysteresis loss of 30 W at 240 V, 60 Hz. The hysteresis loss at 200 V, 50 Hz will be
- A) 28W
 - B) 25 W
 - C) 30 W
 - D) 36W
34. Two coupled coils of $L_1 = 0.8$ H and $L_2 = 0.2$ H have a coupling coefficient $k = 0.9$. The mutual inductance M is
- A) 0.144 H

- B) 0.23 H
 C) 0.36 H
 D) 0.43 H
35. If the ceiling fan, when switched on runs at slow speed in the reverse direction, it can be concluded that
- Winding has burnt out
 - Bearing are worn out
 - Capacitor is ineffective
 - None of the above
36. A choke which is purely inductive is subjected to a voltage of 50V, 50Hz and takes a current of 1 ampere. The frequency is increased to 500 Hz keeping the voltage same. The current
- Will fall to 0.1 A
 - Will fall to less than 0.1 A
 - Will rise
 - Will remain at 1.0 A
37. A 400/200V transformer has its l.v. resistance of 0.02 per unit. The resistance when referred to h.v. side is
- 0.02 p.u.
 - 0.04 p.u.
 - 0.01 p.u.
 - 0.08 p.u.
38. The direction of rotation of dc shunt motor can be reversed by interchanging
- The supply terminals
 - The field terminals only
 - The armature terminals only
 - Either field or armature terminals
39. Compared to a resistor split phase motor a capacitor start motor has
- High starting torque
 - lower starting torque
 - High running torque
 - Lower running torque
40. A 400Kw, 3-phase, 440 V, 50 Hz induction motor has a speed of 950 rpm on full load. The machine has 6 poles. The slip of the machine will be
- 0.06
 - 0.05
 - 0.04
 - 0.02
41. The range of an ammeter and a voltmeter can be extended respectively by
- reducing the spring tension of the deflecting system
 - using shunt and multiplier

- C) using multiplier and shunt
- D) using series capacitor and inductor.

42. Superheterodyne receiver converts all incoming signals to

- A) a lower intermediate signal
- B) A higher frequency signal
- C) a stronger signal
- D) a resonant signal

43. Connecting the inverters at all inputs of an AND gate produces a

- A) NAND
- B) NOR
- C) OR
- D) EXOR

44. Conduction in a BJT takes place due to

- A) electrons
- B) holes
- C) both electrons and holes
- D) majority carriers only.

45. In the output characteristics of JFET, the constant-current region is obtained

- A) after pinch-off voltage
- B) before pinch-off voltage
- C) depends on gate voltage
- D) does not depend on pinch-off voltage

46. Which of the following is best suitable for higher frequency generation

- A) R-C oscillator
- B) L-C oscillator
- C) crystal oscillator
- D) all of above.

47. Which of the following diode can be used for electronic tuning of an oscillator

- A) Light-emitting diode
- B) zener diode
- C) tunnel diode
- D) varactor diode

48. The open-loop gain of an Op-amp is 10000. If $R_f = 24 \text{ KOhm}$ and $R_1 = 1 \text{ KOhm}$ then its closed loop gain will be

- A) 24.94
- B) 49.75
- C) 99.01
- D) 29.44

49. To convert a square wave into a triangular wave the Op-amp should be used as

49. To convert a square wave into a triangular wave, the Op-amp should be used as

- A) a phase shifter
- B) a scale changer
- C) a differentiator
- D) an integrator.

50. Strain gauge is used for converting mechanical displacement into a change in

- (A) temperature
- (B) resistance
- (C) inductance
- (D) capacitance.

51. What number will z in the sample code given below contain?

```
int z, x=5, y=-10, a=4, b=2 ;  
z = x++ - --y * b / a ;
```

- A) 5
- B) 6
- C) 10
- D) 11

52. What value does testarray[2][1][0] in the sample code below contain?

```
int testarray[3][2][2] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12};
```

- A) 3
- B) 5
- C) 7
- D) 11

53. What value will x contain in the sample code below?

```
int x = 2 * 3 + 4 * 5;
```

- A) 22
- B) 26
- C) 46
- D) 70

54. Which keyword indicates that the actual storage and initial value of a variable, or body of a function, is defined elsewhere, usually in a separate source code module?

- A) Register.
- B) Auto
- C) Extern
- D) Static

55. Which one of the following will read a character from the keyboard and will store it in the variable c?

- A) `c = getc();`

- B) `c = getchar();`
- C) `c = getchar(stdin);`
- D) `getchar(&c);`

56. What is the maximum number that can be printed using `printf("%d\n", x)`, assuming that `x` is initialized as shown below?

```
short int x; /* assume x is 16 bits in size */
```

- A) 127
- B) 128
- C) 65,536
- D) 32,767

57. What will be the output of the following statements?

```
int a=5,b=6,c=9,d; d=(ac?1:2):(c>b?6:8)); printf("%d",d);
```

- A) Error
- B) 2
- C) 6
- D) 8

58. What will be output if you will compile and execute the following c code?

```
#include<stdio.h>
int main(){
int i=4,x;
x=++i + ++i + ++i;
printf("%d",x);
return 0;
}
```

- A) 21
- B) 18
- C) 12
- D) Compiler error

59. What is the function of the sticky bit?

- A) It prevents files from being deleted by anyone
- B) It prevents files from being deleted by nonowners except root
- C) It marks files for archive
- D) It prevents files from being deleted by nonowners including root.

60. What is the Difference between struct and class in terms of Access Modifier?

- A) By default all the struct members are private while by default class members are public
- B) By default all the struct members are protected while by default class members are private

- C) By default all the struct members are public while by default class members are private
 D) By default all the struct members are public while by default class members are protected.
- 61 One reversible heat engine operates between 1600K and T_2 K and another reversible engine operates between T_2 K and 400K. If both the engines have the same heat input/output, then temperature T_2 is equal to
 A) 800K B) 1000K C) 1200K D) 1400K
- 62 An error of 1% in measuring head over the crest of the notch will produce an error in discharge over a triangular notch of
 A) 1% B) 1.5% C) 2% D) 2.5%
- 63 The efficiency of Diesel cycle approaches to Otto cycle efficiency when
 A) cut-off is increased C) cut-off is decreased
 B) cut-off is zero D) cut-off is constant
- 64 The flow in a pipe or channel is said to be non-uniform when
 A) the liquid particles at all sections have the same velocities
 B) the liquid particles at different sections have different velocities
 C) the quantity of liquid flowing per second is constant
 D) each particle has a definite path
- 65 A jet of water discharging from a 40mm diameter orifice has a diameter of 32mm at vena-contracta. The coefficient of contraction is
 A) 0.46 B) 0.64 C) 0.78 D) 0.87
- 66 A rod is enclosed centrally in a tube and assembly is tightened by rigid washers. If the assembly is subjected to a compressive load, then
 A) Rod is under compression B) tube is under compression
 C) both rod and tube are under compression
 D) tube is under tension and rod is under compression
- 67 A body is subjected to direct tensile stress of 300MPa in one plane accompanied by a simple shear stress of 200MPa. The maximum normal stress will be
 A) -100MPa B) 250MPa C) 300MPa D) 400MPa
- 68 A square beam and a circular beam have the same length, same allowable stress and the same bending moment. The ratio of weights of square beam to circular beam is
 A) $\frac{1}{2}$ B) 1 C) $\frac{1}{1.12}$ D) $\frac{1}{\sqrt{2}}$

69. A tensile test is performed on a round bar. After fracture, it has been found that the diameter remains approximately same at fracture. The material under test was
- A) Mild steel B) cast iron C) glass D) copper
70. The product of the tangential force acting on the shaft and its distance from the axis of the shaft is known as
- A) Bending moment B) twisting moment C) torsional rigidity D) flexural rigidity
71. An area of wet soil, plants & air constitute :
- A) Semi terrestrial eco system B) Macro-eco system
C) Mesoecosystem D) Mega – eco system
72. Herbivores are eaten up by carnivores, hence they are called as
- A) Primary consumers B) Secondary consumers
C) Tertiary consumers D) Primary producers
73. Forest resource is a major supplier of
- A) Wood B) Mineral
C) Aquatic culture D) Water
74. What is the percentage of salty water on the whole earth
- A) 75% B) 30% C) 85% D) 97%
75. Which of the following is a non-renewable source of energy
- A) Solar energy B) Wind energy
C) Fossil fuels D) Water power

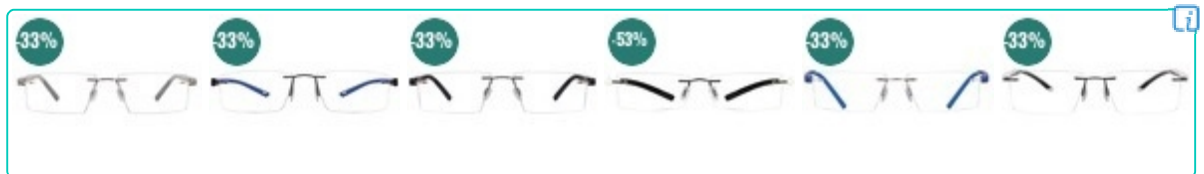
Answer Key

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1	2	3	4	5	6	7	8	9	10
B	B	D	A	D	B	A	D	C	C
11	12	13	14	15	16	17	18	19	20
A	X	A	D	B	A	D	A	B	C
21	22	23	24	25	26	27	28	29	30
D	C	A	C	D	C	A	X	C	D
31	32	33	34	35	36	37	38	39	40
B	C	B	C	C	A	A	D	A	B
41	42	43	44	45	46	47	48	49	50
B	A	B	C	A	C	D	X	D	B
51	52	53	54	55	56	57	58	59	60
C	D	B	C	B	D	A	A	B	C
61	62	63	64	65	66	67	68	69	70
A	B	C	B	B	D	D	C	B	B
71	72	73	74	75					
A	B	A	D	C					

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